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Published for the Collector, Historian and Old Time Wireless Operator

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Best Christmas Wishes

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AWA official business, bulletin material and news of non-joint meets: Bruce D. Roloson, (President and Publisher), 2 Walnut Place, Apalachin, NY 13732, (607) 625-3031. (Exception: column material should go to the column editors.)

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FROM THE PUBLISHER

The mystery photo from the August issue seems to be a real mystery. I only had two responses, neither of which shed much light on the tube and the person holding it. Gary Schneider tells me that he has one of the tubes, and it is not for sale. The other response was from someone who thinks it is an April fools-type-joke. The tube was real however, and apparently not much is known about it.

By the time many of you read this issue of OTB, I will no longer be president of the AWA, and may very well not be the OTB's publisher. I have been president for eight years, and that is long enough; It is time for someone else to take over. A new president will be elected at the Nov. 5 board meeting. I would like to thank all who helped me during my tenure. We will announce the new OTB publisher.

As a head start, we will feature Atwater Kent in the August 1996 issue. For the February 1996 issue we would like to have any articles on early wireless pioneers other than Marconi. Also in February we will have coverage of the 1995 AWA Annual Convention.

COVER

Our thanks for the Christmas postcard goes to Jerry Simkin, bookseller (telegraph, wireless and radio literature), 10 Avalon Lane, Matawan, NJ 07747, (908) 583-5196.

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CALENDAR

(AWA-sponsored event dates in **bold** type)

Nov. 4 ..... California Historical Radio Society, San Francisco, CA

Nov. 5 ..... AWA Annual Board of Directors meeting, Mariott Hotel, Rochester, NY

Nov. 10-11 ..... AWA 1929 QSO Party

Nov. 11 ..... AARC Fall Swap Meet, Tempe, AZ

Nov. 11 ..... HVRA Meet & Auction, Houston, TX

Nov. 12 ..... Colorado Radio Collectors Meet, Denver

Nov. 18-19 ..... Southern California Antique Radio Society, Onterio, CA

Dec. 2 & 9 ..... 1BCG Transmission

Feb. 14-15, 17-18 ..... AWA OT Contest

March 22-23 ..... Carolina Chapter, AWA, 20th Annual Spring Meet, Charlotte, NC

OTB POLICY ON PROMOTING EVENTS

For joint club-AWA meetings (with video/slide shows, etc.), please send the information to Richard Ransley, coordinator. For stand-alone club events, send items to the OTB publisher whose address is on the inside front cover. The forinat is not critical, timeliness is. This section of the OTB is the last to close, about 4-6 weeks before the date of the next issue.

CAROLINAS CHAPTER, AWA "1996 Spring Meet in the Carolinas"

March 22-23

The Carolinas Chapter, Antique Wireless Association, 20th Annual Spring Meet in the Carolinas at Charlotte, N.C., March 22-23, 1996. Mark calenders now! Meet features two-day flea market, old equipment contest, auction and programs by radio collecting experts before 8 a.m. March 22 - ENFORCED. Accomodations: Sheraton Airport Plaza Hotel (1-800-325-3535). Info: Stephen Brown (704-847-1301) or Ron Lawerce (704-289-1166).

COLORADO RADIO COLLECTORS MEETING

Nov. 12

Denver, CO — 2020 Wheat Barberry Place, Wazee Electric Bldg., Community Room, 1 p.m., followed by swap meet in parking lot. Info: Rick Ammon (970) 221-4001)

RECURRING MEETINGS

• **California Historical Radio Society** — Quarterly swapmeets in Ampex Corp. parking lot, Redwood City. Gates open 8:30 a.m. Regional events general address is: CHRS, PO Box 31659, San Francisco, CA 94131. 24-hour voicemail info: (415) 978-9100. (Info from Mike Adams.)

• **Hudson Vallev Antique Radio & Phono Society** — Meets 3rd Thurs. of month, 7 p.m. Meeting, swapmeet, and membership info: HARPS, PO Box 207, Campbell Hall, NY 10916, or call John or Linda Gramm at (914) 427-2602.

• **Mid-Atlantic Antique Radio Club** — Meets monthly at New Hope Seventh Day Adventist Church, Burtonsville, MD, Sundays, 2 p.m.. Contacts: Lloyd Kendall, (703) 471-6143, or Joe Koester, (301) 725-4229.

• **New Jersey Antique Radio Club** — Meets 2nd Fri. each month, 7:30 p.m. Holds three annualswap meets. Contact

(send SASE): Tony Flanagan, 92 Joysan Terr., Freehold NJ 07728, (908) 462-6638.

• **Oklahoma Vintage Radio Collectors** — Meets 2nd Sat. each month, Spencer's Barbecue Restaurant, NW 63rd and May Ave., Oklahoma City. Dinner/socializing, 6 p.m.; meeting at 7. Membership, $12/yr., includes monthly Broadcast News. Info: SASE to OKVRC, PO Box 72-1197, Oklahoma City, OK 73172-1197, or call (405) 722-0595 or (405) 7554139 eves.

• **Ottawa Vintage Radio Club** — Meets monthly (except June and July) in Conference Room, Ottawa Citizen, 1101 Baxter Rd., Ottawa, Ontario. Contact: Tom Devey, 601-810 Edgeworth Ave., Ottawa, ON K2B 5L5, (613) 828-5152. Membership: $10 Canadian/yr.

• **Southern California Antique Radio Society** — New meet times/places: May 20, San Luis Obispo, joint meeting); June 17 & Aug. 19, Los Angeles, (business & flea market). Info: Floyd Paul, (818) 242-8961.

SERVICE SOURCES AVAILABLE

The AWA Source Sheet is a listing of parts suppliers and services for the radio collector. Cost: only a business-size self-addressed stamped envelope to AWA, Box E, Breesport, NY 14816.

AWA SLIDE/VIDEO PROGRAM

The Antique Wireless Association has available several historical documentaries to loan to affiliated organizations for club meetings and programs. There is no charge for this service other than return mailing cost. For info on loan conditions, to make reservations, or just inquire, contact Richard Ransley, PO Box 41, Sodus, NY 14551. The following are available:

VHS Video Programs

V-2 — "Electrons on Parade." 18 min. 1938 movie made at RCA's Harrison Plant showing production lines with closeups showing receiving tubes, including a short sequence on transmitting tubes. (Very rare movie.)

V-4 — "The British Receiver." Documentary of the AWA/BVPS meet with visit to Marconi's Chelmsford plant, the British Science Museum, and ending with series of collectible British receivers. (VHS program transferred from slides.)

V-5 — "The Early Years." Historical documentary narrated by Clarence Tuska telling of the early years of amateur radio, founding of the AARL and WW I military radio training school. (VHS program transferred from slides.

V-6 — "The Key." History of the telegraph/radio key covering early hand keys, semi-automatics and commercial types. Script by Lou Moreau, W3WRE. (VHS program transferred from slides.)

V-9 — "The Trans-Atlantic Tests and 1BCG." Rare documentary/photographs showing early amateur operation leading to famous 1921 transatlantic tests.

V-12 — "Those Wonderful Magazine Covers." The story of radio through magazine covers. Colorful with period music.

V-15 — "The WHAM Story." Details development of a pioneer radio station in Rochester, NY. Program developed with assistance and recollections of Art Kelly, the station's former general manager.

V-16 — "The Charles Herrold Story." Video propared by Mike Adams who donated this copy to the AWA. It documents the work of broadcasting's Forgotten Father who started broadcasting in 1912.

Continued on page 16

AWA NETS (EST)

PHONE:

Sun. 7247 kHz SSB, noon (NCS: N4FS); 3837 kHz, 3837 kHz, AM 4 p.m. (NCSs: W2ZM & W2AN)

Tues. 14274 kHz SSB, 2:30 p.m. (NCSs: KC3YE and W0FXY) 3837 kHz SSB, 8 p.m. (NCS N4FS)

Mon.-Wed.-Fri.: 3867 kHz, 9:30 a.m. (NCS: W2SHN)

CW:

Daily, 4 p.m., 7050 kHz (NCS varies)

First Wed. of each month, 8 p.m., 7050 kHz

2-M REPEATER (Rochester area):

Mon., 7:30 p.m. (NCS: W2ICE)

Receive 146.820 MHz; transmit 146.220 MHz

OTB BACK ISSUES

The following back issues of *The Old Timer's Bulletin* are available at $3 each postpaid, with a 20 percent discount for 6 or more issues and 30 percent off for 12 or more. The nine special-theme issues contain the normal columns and news, plus a core of features on a particular topic area. The number of special-focus pages in each issue is listed below. Index to *OTB* volumes 20-34 and the *AWA Review* volumes 1-8, free on request with purchase. Please indicate alternative choices when ordering back issues of *OTB*.

VOLUME AND NUMBER

20-3 Muchow Collection/J.F. Arnold Receiver
22-2 John Stone Bio/Sylvania Tube History
22-4 Cutting & Washington History
23-3 AK Horn Speakers/Wehnelt Cathode
25-3 RCA 630 TV/French Cable Co./1930 Receiver
25-4 Four-tube Superhets/Comet Pro Receiver
26-1 S-M "Around the World Four"/Cockaday BC Receiver/Building a Rotary-Gap Xmtr
26-2 National FB-7 I/L.L. Israel Bio/W'house RC
26-3 National FB-7 II/Radio in S. Africa/Mercury Super 10/Building a 1929 Receiver
26-4 Gilfillan History I/Sargent Model 11 Rcvr
27-1 Gilfillan History II/Schickerling Tubes
28-1 Dynergy AC-Powered Radio/Pilot TC-37 TV
28-2 '26 Radiomovies Today/National AGS I
28-3 Dowd Tube Collection/National AGS II
28-4 SE-1950 Radio Compass/National Sliding-Coil Receivers/Collecting Radio Batteries
29-1 Philco 17 Restoration/ZL2JJ '34 Station
29-2 Fada 460 Restoration/3ZO 1922 Station
29-3 Moorhead Tubes I/British '30s TV I
29-4 Moorhead Tubes II/British '30s TV II
30-1 GE Octagon TV Set/TR-1 Transistor Clones
30-3 **Military Equipment Special** - 17 pgs. of 48
30-4 **Broadcast Receiver Special** - 12 pgs. of 48
31-1 **1903-20 Wireless Special** - 5 pgs. of 48
31-2 **Restoration Special I** - 20 pgs. of 56
31-3 **Tube Special** - 19 pgs. of 48
31-4 **International Special I** - 11 pgs. of 48
32-1 **Communication Gear Special** - 18 pgs. of 48
32-2 An HRO Story/Loewe Tubes/GE M-81
32-4 Marconi V24 Valve/HRO in British Army
33-2 **40th Anniversary Special** ("Best of OTB, 1960-82") - all 48 pgs., incl. RCA Metal Tubes
33-4 Scott Special Rcvr/National Power Units
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35-2 Van Horne Tube Co./Philco TV Designers/Foreign "HROs"/1200- & 1600 Series Tubes
35-3 Radiola 17 & 18/1929 Regen/G & R Valve Co.
35-4 Negatron/Mercury Super Ten/The Breting 14/James Millen Memorial Station
36-1 Orrin Dunlap's Lab/Kolster K23/Bush & Lane Radio
36-2 Headset & 201/201a Listing
36-3 100 Years of Radio

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Please send the following volumes of the AWA Review (Price postpaid in US and Canada. Reviews — $13 for one volume; $23 for two; $33 for three ($14.50, $24.50, or $34.50 elsewhere.):

_____ Copies of Vol. 8 _____
_____ Copies of Vol. 7 _____
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Optional: Extend my AWA membership by 2 years ($22 US & Canada, $30 foreign). _____

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COLLECTOR BOOKS

Collector's Guide to Antique Radios by Marty & Sue Bunis 5,000 models, 400 color pictures 3rd Edition $18.95
**222 Radio Circuit Designs, 5.5 x 8.5, 271 pages $11.95
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**Loud Talkers/How To Build Speakers, 1923 ..... $4.50
**1920 Wireless Experiments Manual, 5.5 x 8.5, 340 pages $13.95
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1001 Radio Questions & Answers, 1926, 8.5 x 11, 96 pages $8.95
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Radio Equipment & Supplies - 168 page reprint, circa 1922, 8.5 x 11 ..... $19.95
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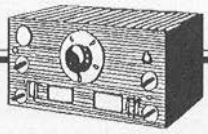


NATIONAL NOTES CONTINUED
NO. 7 — RESTORING THE NATIONAL PW DIAL DRIVE

Introduction — In 1994 this column introduced National Notes, a continuing compilation of assorted ideas and facts about the multitude of National Radio Co. products. We continue in this issue with a noteworthy piece of bench work by George Gunnoe, K3DA, (24 Smithfield Village, East Stroudsburg, PA 18301) on the famous and ubiquitous PW dial drive, originally designed by Grayden Smith and introduced by National on the 1934 HRO. Since National was also in the parts business, these dial drives are often found at flea markets, and just as often they do not work properly; the action can be stiff, the dial may slip numbers on turning, and they are old. Read on...

— K3ZJW

This is a complex mechanical device, and the problems may be related to any or all of the following: Gear lubrication, the bearing, the offset hub, the dial per se, the drive shaft, the fiber washers, and the knob. National built two versions, the PW and N-PW drives. The latter, an in-line design, was first used on the NC-100 series receivers, and has a different gear assembly than the right-angle unit used with the HRO.

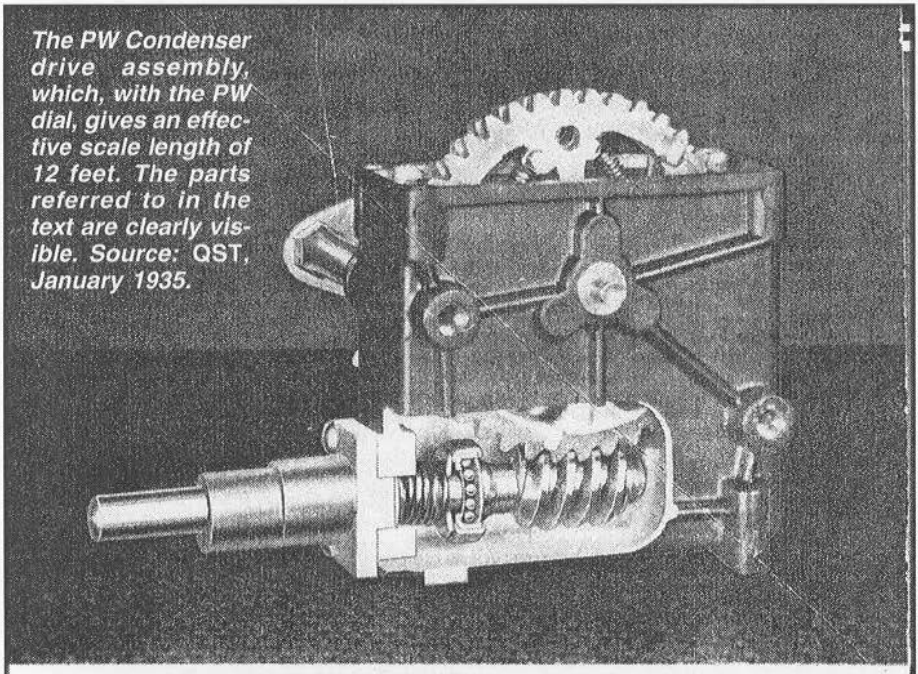
After working on several of these dials, a routine was developed to correct the problems.

DISASSEMBLING

Remove the dial (if problems here, see the August 1994, issue, Note No. 1) and set it aside. Turn the drive shaft by hand and note the force needed. Next, remove the four screws from the top of the housing and check the relative locations of the two spring-loaded split halves of the large circular bull gears. They should be positioned so that the two small holes line up. When the unit is reassembled, the spring tension will have to be restored to this spot. Also, before proceeding, note that a stud on the gear will hit against a projection inside the top cover, acting as a limit stop. Note its location for reassembly.

Slide a nail through the two lined-up one-eighth inch holes in the large circular gears to take up the spring tension. Now remove the offset hub from the lower front, and carefully slide it off the shaft. Note if it binds the shaft. Remove the spring and the fiber washers on each end; these may be bent out of shape. Now grasp the worm-drive shaft and carefully work it and the bearing from the housing. If you have to use a vice to hold the shaft, protect the soft steel from scoring. Slide the bearing off, noting which way it goes on the shaft (flat side towards the spring; concave side towards the worm drive).

Check the rotation of the large bull gears but do not remove them unless they



The PW Condenser drive assembly, which, with the PW dial, gives an effective scale length of 12 feet. The parts referred to in the text are clearly visible. Source: QST, *January 1935.*

Regarding a product such as the new PW Condenser, no better advertisement can be written than a plain description of its design features. The drive is smooth and positive, through a steel worm and accurately hobbed worm gear, preloaded with springs to eliminate backlash and wear. The worm bearing is conical with a ball-bearing thrust, spring-loaded to take up wear. The entire drive is enclosed, the ratio being 20 to 1. The rotor shaft is 3/8" in diameter, grounded in the center, and rotating in insulated bronze bearings at the ends. There are four radial bearings, and two ball thrust bearings. Each rotor is individually insulated, contact being made through a four-leaved brush. Plate shape is straight-line frequency, and Stator insulation is Steatite. It is made with one, two, three or four sections. The dial is of a new micrometer type having an effective scale length of twelve feet, and reading to one part in five hundred. As the dial and condenser sections are floating, the condenser is immune to distortion from warping of the panel or chassis.

Equally suitable for laboratory instruments, or for the finest High Frequency Receivers, we feel that the use of the PW Condenser is indicated wherever high precision in calibration is desired.

NATIONAL COMPANY, INC., MALDEN, MASS.

show mechanical damage and there is no other way.

MAINTENANCE AND REASSEMBLY

Start by cleaning out all the old grease, using a solvent such as gasoline or a light oil as WD-40. A 10-mil shim worked back and forth between the gears will help. Swabs, Q-tips, etc., will all aid the cleaning. The grease may be quite hard, especially on the worm drive. Relube all the moving parts, using almost any good grease; use oil on the shaft bearings. *[Ed. note: Gasoline is very dangerous. If you must use it as a "solvent," do so only out of doors.]*

Now check the condition of the shaft where it goes through the offset hub; it can be cleaned with emery cloth until

Continued on page 10

— NATIONAL PW DIAL DRIVE

Continued from page 9

smooth. It should measure 0.310 inches. Next, examine the ball bearing unit and its mounting on the main shaft, and touch up any score marks with emery cloth. Lightly lubricate with grease.

To make the drive action smoother and to correct a major problem, I found it necessary to replace the aged and distorted fiber washers with thin steel ones. Mine measured 0.680 inch OD, 0.330 inch ID and 0.020 inch thick. Note that the washer must just fit through the housing hole, but be big enough to ride on the outer race of the bearing. The assembly consists of the bearing, a washer, the spring, and a second washer.

Another significant source of trouble is the zinc casting offset hub that the numbered dial rides on. It must be miked for roundness and size, and more often than not it will be found to be oversized and out-of-round, sometimes enough to kill the whole dial drive. The nominal size of the dial hole is 0.560 inches, and the hub should be slightly smaller, by about 2-3 mil. Work the hub down with a file and every cloth to correct size, checking frequently to be sure it is round. Take enough time here to do a good job, and it will pay off. A 0.312 inch drill bit passed through the shaft hole in the hub will clean it out. Using a swab, regrease the hole.

Grease the worm drive and its rear tapered support bearing. Being sure of the correct parts placement, wiggle the assembly back into the housing, after first restoring tension on the spring-loaded gears (a third hand helps here, or use the nail through the two holes as above). Replace the hub, with the side marked TOP up.

At this point, with everything lubricated, I take an old knob, drill out the hole to 0.312 inch, and use it turn the shaft to work the lube into key areas. When the the drive shaft is working correctly, with minimal binding, the PW dial should be taken apart, thoroughly cleaned, relubricated with any good thin grease, and reassembled. (The procedure is detailed in National Notes No. 2, *OTB* 35-3, August 1994. If you need the info, send me a SASE.)

Fit the dial to the gearbox, with the two internal tension springs vertical and the top number centered in its window, at 250. If the mechanism now works freely and smoothly without clicking or hanging up, you are home free. However, it may take several on-offs of the dial, and honing of the hub and the dial hole, to finish the job. A bluing dye can be used to locate the high spots on the hub; where the dye is removed, hone these down.If there are raised spots on the dial opening, or if it is less than 0.560 inch, I polish with emery cloth.

COMMENTS

If the dial plate is warped it has to be replaced, or the internal stress relieved by clamping it to a heavy, flat piece of metal and heating in an oven to 212-240 degrees F for an hour, then allowing to cool slowly. Unfortunately, this approach may require a repainting job if the temperature reaches 240 or above.

Zinc dye castings have a tendency, depending on storage conditions, to increase in dimension (grow) with time. Literature references indicate about 0.001 inches in five years; thus the hub in 40 years could "grow" as much as 0.004 inches, enough to cause trouble. Furthermore, the growth will be uneven due to the offset center hole, resulting in an oval.

The fiber washers, when exposed to oil and pressure over time, tend to flex with the force of the spring. This will bind the inner race of the bearing, causing heavy drag. Replacement with steel washers seems to work well, even though the original design probably used the fiber to act as a noise suppressor and insulator.

The in-line N-PW drive has a totally different gear assembly, but the problems with the offset hub and the dial, and the corrections, are the same.

AWA Review Now Available

Beginning with Vol. 1 of *The AWA Review* in 1986, the Antique Wireless Association has sought and published the efforts of dedicated workers who have researched and documented the records of past events associated with the history of wireless communications. Ten years later, Vol. 9 continues this established tradition by presenting five papers by experts on their respective subjects.

• The life of Guglielmo Marconi, although well documented in the past, is presented in a totally new format by Jim and Felicia Kreuzer who have coupled the story of this remarkable man with more than 120 photos, many never before published, of Marconi, his early equipment, and the products of his various wireless corporations. On this 100-year anniversary of the birth of practical wireless communications, this article is a must for collectors and dealers in Marconi artifacts as well as historians.

• Ed Lyon who has spent the greater part of his professional career working with radar, has authored "The International Contest for RADAR," an authoritative as well as highly entertaining story of the development of the technology set against the backdrop of World War II and Great Britain's struggle for survival. For WW II buffs as well as wireless historians, this extensive and well-illustrated paper is excellent reading.

• Ed has also written "The Real Story of the Magnetron," the vacuum tube that enabled the development by the allies of superior radar during WW II. A companion to the RADAR story, it describes the

Continued on page 16

PAPERS NEEDED FOR REVIEW VOL. 10 TO BE PUBLISHED IN 1996

Authors who wish to contribute to The AWA Review, Vol. 10, to be published in 1996, should contact the editor and describe in general terms the content of the paper and its length. A detailed contributors' guide will be forwarded.

Timeliness of contributions is important, as several months are required for the editing and production process. At this writing, ther first paper has been received and is being processed.

Contact: William B. Fizette, K3ZJW, AWA Review Editor, RR1, Box 55, Henryville, PA 18332, (717) 629-0637.

CELEBRATION OF 100 YEARS OF RADIO IN CAPE BRETON, NOVA SCOTIA

By Henry M. Bradford
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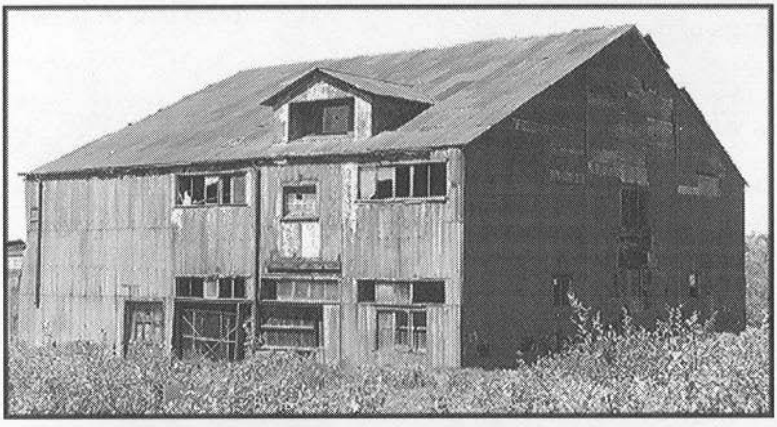
In 1895 Guglielmo Marconi transmitted radio signals a distance of more than a mile at his home near Bologna, Italy. This event is often regarded as the birth of radio communications. To celebrate the 100th anniversary of this event, Italy sent the naval vessel *Zeffiro* to several Atlantic ports this summer carrying displays depicting Marconi's early radio work. After earlier visits to New York, Montreal, and Halifax, the *Zeffiro* docked in Sydney harbour in Cape Breton, Nova Scotia, on June 19. Sydney is about 10 miles from Glace Bay, where Marconi built two transatlantic stations near the turn of the century.

The rear deck of the *Zeffiro* was roofed over with canvas and converted into a display area. The displays included many photographs, artifacts, and replicas of Marconi's early experimental apparatus. Public tours were conducted June 20. The city of Sydney reciprocated with a welcoming reception and technological displays on the harbourfront boardwalk on the evening of June 19. This was followed on June 20 by several ceremonies in the Glace Bay area which involved the ship's company, local and visiting dignitaries, and the public.

The first ceremony on June 20 was at Table Head in Glace Bay, the site of Marconi's first transatlantic station in area. It was from this station that the first official transatlantic wireless message was sent to Poldhu, Cornwall, on Dec. 15, 1902. This station was pictured on the cover of the August 1995 issue of *The Old Timer's Bulletin.* The site is now called the Marconi National Historical Site, and is operated by the Canadian Parks Service. A small but attractive visitors' centre contains photographic displays, a model of the station, and the amateur radio station VE1VAS. (See the photo of the crew of the *Zeffiro* at the centre).

The next ceremony was at the Glace Bay Miners' Museum where Dr. Carlo G. Corazza of the Guglielmo Marconi Foundation of Bologna, Italy presented a lecture on Marconi's early experimental work and his transatlantic success. This was



The remains of part of the transmitter building at the Marconi Towers station site near Glace Bay, Nova Scotia.

The former station manager's residence at Marconi Towers. Marconi stayed here circa 1905-07 while he established a commercial transAtlantic service with Clifden, Ireland.

followed by remarks by the author about Marconi's transatlantic stations in Cape Breton.

The group then moved to the site of Marconi's second transatlantic station in the area, at Marconi Towers, just south of Glace Bay. This station was built in 1905 to replace the Table Head station, which never achieved transatlantic communications reliably enough to be a commercial success. The Marconi Towers station was more powerful, operated at a longer wavelength, and had much larger antenna arrays. A commercial service between this station and a similar one at Clifden, Ireland, began in 1907. After a fire in 1909 Marconi Towers was equipped with the latest apparatus, including a large rotary spark gap transmitter with a power input of about 300 kilowatts. The on-site receivers employed magnetic or crystal detectors, and were later equipped with Brown relays (electromechanical audio amplifiers) and Dictaphone-style recorders. Separate receiving stations were built in 1913 at Letterfrack, Ireland, and Louisbourg, Nova Scotia, to facilitate a simultaneous two-way (duplex) service. The wavelengths used were 8000 metres (37.5 kHz) west-to-east and 5500 metres (54.5 kHz) east-to-west. The long wavelength transatlantic service was replaced by short wave in 1926, but the Marconi Towers station operated ship/shore services until it closed in 1945.

The former manager's residence, where Marconi and his new bride lived while he got the station on the air, and part of the transmitter building still stand. These buildings were shown on the Arts and Entertainment Network television program about Marconi in its *Biography* series in April. The ceremony at Marconi Towers, which is privately owned, included the unveiling of a plaque designating it a Nova Scotia heritage site.

Two days earlier the house was visited by Princess Elettra Marconi Giovanelli, Marconi's daughter by his second marriage. The 100th anniversary celebrations came to a rousing conclusion with a dinner and social evening for the *Zeffiro's* company at the Italian Community Hall in Dominion, near Glace Bay.

EDITED BY
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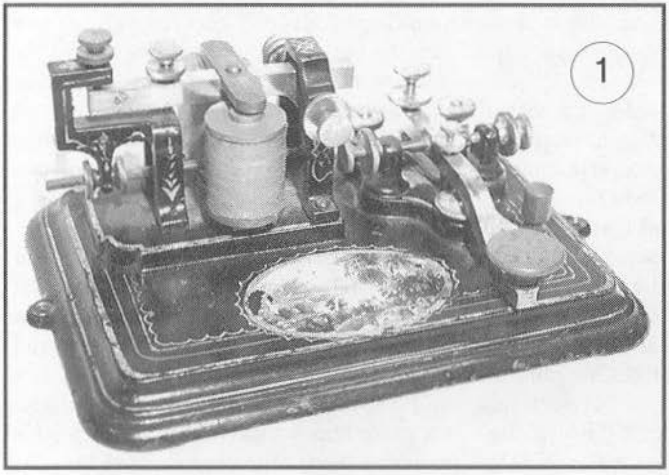
CLICK TWICE IF WE NEED ICE

The 1870s and 1880s were a time of great industrial development, and *the* means of communication was the telegraph. The telephone wasn't patented until 1876, and it took a good many years before it could compare to the telegraph in terms of access.

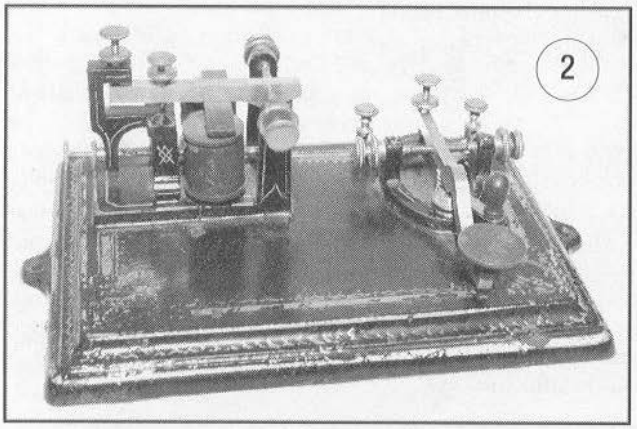
Use of the telegraph network was limited, however, in the sense that one had to find the nearest telegraph office, sunimon a messenger, or hire an operator and lease a connecting line in order to transmit or receive information. The private citizen who wished only to communicate with a relative across town did it face to face, or he might just be motivated enough to string some wire himself.



Private lines leased by Western Union *et al* to commercial ventures go back to at least 1867, and in the following years leasing wires for press and stock quotation services became an important component of the telegraph business. The instruments furnished were of commercial quality, of course. But what about the mom-and-pop store down at the comer, whose owner lived a few houses away? The cost of leasing a line from Western Union or Postal could not be justified, but there was a need to communicate now and then, even if it meant trying to teach the code to one's spouse. Restrictions on stringing a few hundred feet of wire were apparently not major obstacles.

The entrepreneur who got his line up and working was often asked to extend his line to a friend's house, and before long a local, informal sort of a network was in place. Ludwell Sibley recently wrote an article for his local historical society about the Flemington (NJ) Telegraph Co. The company may have grown to include about 20 stations, perhaps somewhat larger than most private

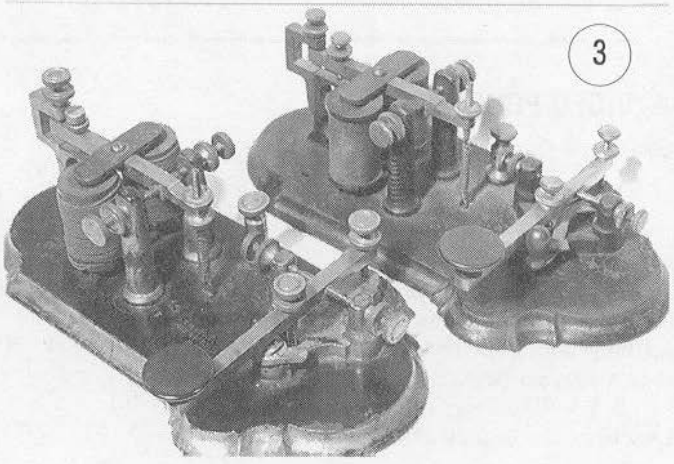
systems. Lud noted that, "The public at this point was highly 'telegraph concious.' Telegraphy as a hobby had a glamour of its own." The company that grew out of this private activity "...was an unincorporated association for the convenience of individual members. It provided, in effect, a 'party line' reaching all users' premises. [T]he typical user of the Flemington system used the telegraphic equivalent of hunt-and-peck typing. The attention paid to sending practice and conversational use of the line in the rules suggests that much of the operating was casual and slow." Surprisingly, the company lasted until about 1898, when the village passed an ordinance regulating the erection of poles in its streets. But what of the instruments used on these party lines?



Picture the Victorian house of the day. There must have been a fair number of ladies of the house who insisted on instrumentation befitting the highly ornamented furnishings. Either that or the instrument makers were perceptive enough to realize that what was good enough for the depot was not good enough for the living room. The result was the marketing of ornate kob's, typically on a fluted cast iron base and always highly decorated with gold filigree plus other painted designs. These instruments are not only hard to find (the production runs would not have been anywhere near the quantity of the usual commercial instruments) but also suffer greatly from damp basement syndrome — the paint is long gone and the rust is rampant.

Western Electric Manufacturing Co. seems to have been especially successful in selling private line sets. Photo No. 1 shows a typical set; the oval "picture" was apparently hand painted, and from what we've seen on other WE private line sets, portrays whatever was on the artist's mind at the time. Note the incorporation of the

Continued on page 16



— KEY & TELEGRAPH

Continued from page 15

Lewis patent (I 875) key. The base of the sounder and the key, including even the lever trunnion supports, are integral parts of the cast base. The same complex type of casting is found on a WE set with a Steiner key and a slightly later style sounder.

Jerome Redding of Boston offered a nicely proportioned camelback key (photo No. 2) on his private line set, which was patented on April 3, 1877. The key and sounder bases are similarly part of the base casting. Photo No. 3 reveals a bit of a mystery — the base castings are identical on each of the sets, but the makers' names stencilled on the bases are L. G. Tillotson and Partrick, Bunnell & Co. respectively. It seems likely that Tillotson supplied the unadorned set to the latter company, which decorated it in its own style and furnished typical highly machined PB&CO. adjusting screws and jam nuts.

A Western Electric *Manual of Telegraphy, and Catalogue of Private Line Instruments* issued in 1875 shows that the average cost of a private line set similar to those illustrated was about $7.50, about one-half the price of a commercial kob or box relay. The cost of manufacture was reduced significantly by the generous use of cast iron. On the other hand, the cost of a telephone in the minds of those struggling to learn code was probably regarded as a much better bargain.

— AWA REVIEW READY

Continued from page 11

efforts of the international scientific community to develop this key defensive weapon during a time of great crisis.

• Pat Dowd covers the work of Fritz Lowenstein. the forgotten man who originated the use of negative grid bias. In this paper he describes the world of patent attorneys and court cases, and Lowenstein's attempts to claim a legal patent on what he felt was rightfully his.

• Author Neil Friedman presents a comprehensive overview of the 83 years of government licensing of U.S. radio amateurs. This article is well illustrated with reproductions of the many versions of licenses issued over the years, and is an excellent guide for collectors of this type of ephemera.

Vol. 9 of *The AWA Review* may be ordered from Dexter Deeley, 8 Briar Circle, Rochester, NY 14618. It is 256 pages, contains 181 illustrations and costs $20 postage paid.

— VIDEO PROGRAMS

Continued from page 5

Slide Programs

S-1 — "Portrait of a Pioneer." The life of Elmo Pickerill.

S-2 — "Polar Adventure." Pictures taken by Bud Waite and his narration describing numerous trips to the Antarctic over a 35-year period.

S-3 — "70 Years of Vacuum Tubes." Describes the history of vacuum tubes.

S-4 — "The Early Years." (See description for V-5.)

S-7 — "The Trans-Atlantic Tests and 1BCG." (See description for V-9.)

S-8 — "Trip Through the AWA Museum." Covers exhibits and equipment.

S-12 — "The Key." (See description for V-6.)

TELEVISION

EDITED BY

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Please include SASE for reply.

AWA RECEIVES ANTIQUE TELEVISION COLLECTION

On the June 8 I was pleased to be involved with the AWA acquisition of numerous items from the Jack Davis TV collection.

AWA board member Morgan Wesson who organized AWA's acquisition efforts, needed help in packing and loading this most generous donation from Jack and Fran Davis. Jack has been in poor health and he felt that it was time to move ahead with previous plans to make this disposition. (Since I now live relatively near Jack's White Plains home, I was most willing to help out.)

Advice during the selection process was given by Larry Babcock and Chris Fandt as well as myself.

The two-plus hour trip from Eastern Long Island to White Plains, was made early (to avoid the rush hour traffic) on that Thursday. I met Morgan and Mike Csontos for breakfast. We then headed for Jack's house where we met Fran Davis, and began preparing TVs for shipment. (Some of the work had been done the previous evening.)

The major consideration was whether to remove CRTs from the sets for transportation. This was done in some cases, especially when the CRTs were not considered to be securely mounted or if the neck of the tube extended beyond the rear of the cabinet. The sets were carefully loaded into a van for the trip.

Here are some of the sets the AWA has received:

Probably the most significant, the Dumont model 180 12-inch table-model, was one of the first electronic receivers on the market in the U.S., predating the introduction of the RCA TRK series by several months. It reportedly has an excellent picture, a tribute to the high level of engineering by Dumont Labs. Some of the 180s were equipped with a high voltage doubler circuit as well as circuits which could be switched to accept different line rates since the FCC had not yet established official standards.

A GE HM-226 was also included in the AWA package. It, too, has a 12-inch picture and also is equipped with five channel push buttons. (GE seemed to favor push-button channel selection) It is a console equipped with a multiband radio, very desirable since there was only about one or two hours of TV broadcasting a day in 1939! Typical of the pre-war sets, it had no RF front end, resulting in low sensitivity. With sufficient signal, the set gives a good picture.

A nice example of the Meissner kit 5-inch set was also part of the acquisition. This set looks much like an oscilliscope and isn't much bigger. It has only two channel positions available, but this wasn't a problem in most areas. The set did not typically come with a cabinet, so the high voltage section and all the CRT tube circuits are protected from wandering hands by a metal, black crackle enclosure. Since the high voltage sections of all pre-war

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EARLY SONY PORTABLE TV

By Enrico Tedeschi
54 Easthill Drive, Portslade, Brighton, BN41 2FD, United Kingdom

© Enrico Tedeschi

SONY claims to have been the first company in the world to design and produce (in their words) "the lightest, smallest direct view battery-operated transistor TV set." [The Philco Safari, which came out early in 1959, was a projection set. —Ed.] Even if it were not the first company to do this, nobody else had the same success that SONY had that year when it announced it had succeeded in doing so through research.

The story of these first portable TV sets is similar to that of the first pocket transistor radios of the mid-1950s. Why would customers buy such a tiny radio when they had a better one at home? And why compromise in sound quality and performance when the home set was so much more sensible and powerful?

Besides these commercial motives there were technical problems. The early silicon transistors were unable to reach the very high frequencies (100 mhz and up) required by television's inner workings. RCA did try to market a 7-inch set incorporating vacuum tubes but "they found it virtually unmarketable." (Reference 2)

SONY had to invent a completely new market and in the process a new way of making 8- and 5-inch TV tubes. At a time when American firms were promoting 27-inch screens, this appeared to be commercial suicide.

Not withstanding what the "experts" were saying, SONY began to sell its model TV 8-301 in May 1960. This model employed 23 silicon and germanium transistors, 15 diodes, and two high voltage rectifiers. In addition, SONY engineers developed nine new semiconductor devices including the 2SA-16, a germanium mesa transistor for horizontal deflection, the

— AWA RECEIVES TVs

Continued from page 17

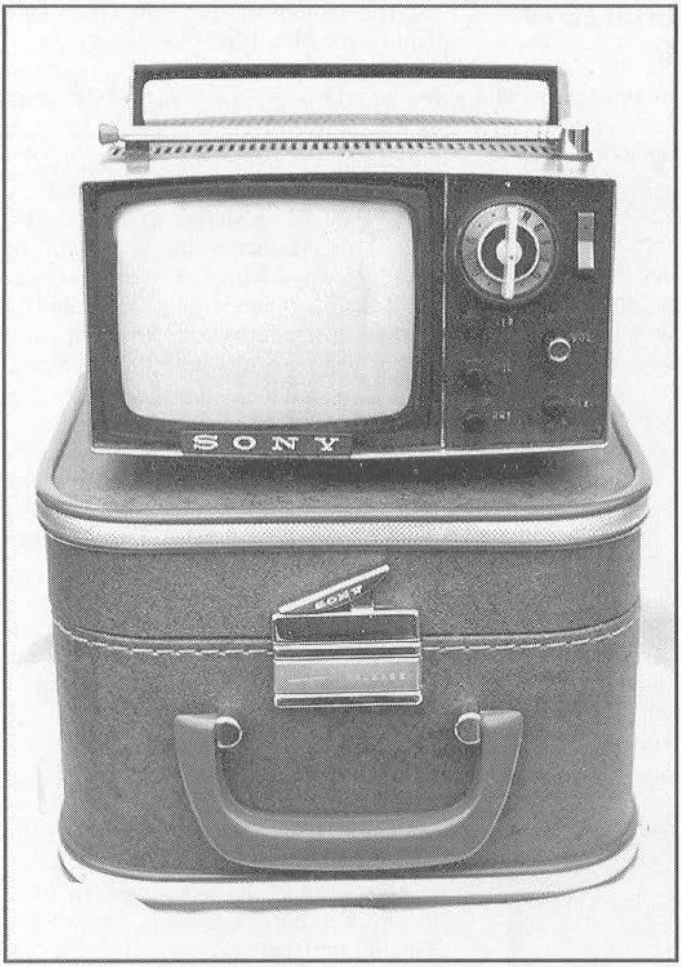
sets were 60 cycle they could be lethal, ranging up to at least 6,000 volts.

Mechanical scanning sets were also included. The SEE-ALL and Jenkins units are rare and will make fine additions to the AWA collection. The SEE-ALL needs a lens assembly, so this will keep the restoration people busy. Both are believed to be 60 line sets.

A fine example of an RCA 621 7 inch set was also acquired. This was the first set made by RCA after World War II. It looks a lot like a pre-war set but has a 13-channel tuner and an RF high voltage power supply as well as an RF preamplifier. Miniature tubes are used in this set, not found in earlier TVs.

A 10-inch RCA 630 was included as well. This is the first mass-produced TV and was copied by many manufacturers. It is an extremely well designed chassis incorporating many features now considered essential, such as a flyback high voltage supply and AGC. For years afterwards, articles were written on how to convert this set for a larger picture tube.

These sets as well as others previously acquired by AWA will eventually be displayed in a new section of the AWA Museum.



The SONY Model 5-303 with its own hard case.

2SC19, a grown silicon transistor for image output, and a special RF transistor.

When the set went on sale, television was still considered an expensive commodity even for the affluent American family. For about the same price, consumers considered a large screen TV to be a more attractive alternative to the portable 8-inch "toy" that SONY was offering. What's more, the 8-301 broke down frequently so you had to be rich and tolerant.

There were other problems, too: The set was portable, but what SONY did not tell you in its commercial blurbs was that the batteries were outside the set and that you needed up to 10 hours of recharging time to get a few hours of operation. And with the batteries the set weighed a hefty 17 pounds.

SONY's efforts to reduce weight and size and extend battery life produced the TV 5-303, a portable "Tummy TV," as it was soon dubbed by the advertising agency in charge of publicity. All the problems of the 8-inch set were resolved in the design of the new 5-inch design. The biggest problem with the 8-301 was its

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— EARLY SONY PORTABLE TV

Continued from page 19

extreme sensitivity to temperature. The tube was the other big problem as no company had ever before tried to make such a small tube with a 70 degree deflection angle.

Finally in November 1961 SONY started trial production of the 5-inch set, determining not to make the same mistakes that had been made with the 8-inch set. The 8-301 had gone on sale in one of the hottest seasons of the year, and as the summer set in, the rising temperatures altered the transistor characteristics and synchronization was lost. This time the transistors were rigorously tested for temperature tolerance and everything was double-checked.

When the marketing people sought for a name, over 30 suggestions came from staff; Mini-TV, Pico-TV, My-TV, The Hand-Held TV. The winning choice was Micro-TV, and the catch phrase being: "The transistor that revolutionized TV."

SONY portable Model 8-301 shown in a period advertisement.

The launch of the 5-303 had been planned for May 1962, but when the emperor and empress of Japan announced they would be visiting the SONY plant the date was moved up. This made headlines in several weekly magazines. SONY security was put under a strain as the Micro-TV was to be shown to their majesties, who were then asked to protect it's confidentiality. With the royal cooperation, SONY's secret remained safe and on April 17, 1962, the world's smallest, lightest television was announced to the press, and it managed to get a respectable three-column title in the major Japanese newspapers.

Frank Sinatra was so impressed with the 5-303, which he saw during his visit to the factory in late April, that he asked for a set to take back to the U.S. Unfortunately, the American version was not ready yet. [The TV channel frequencies are different in Japan. —Ed.] In October of the same year, when SONY managed to produce a U.S. standard model, Sinatra got his Micro-TV. SONY's boss presented it to Sinatra on the Paramount Pictures set where Sinatra was working.

The 5-303 was revolutionary for the time, but was still a heavy, thirsty, basic set compared to the more modern LCD shirt pocket models of today, or even the Sinclair multistandard micro-TV of 1976. SONY was later compelled to add an external UHF adapter in an attempt to keep up with technical development, but the 5-303 can still be considered a milestone in the history of portable television.

REFERENCES

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2. Nick Lyons, *The SONY Vision,* Crown Publishers, Inc., New York, 1976, p. 112.
3. Akio Morita, *Made in Japan,* Harper Collins, London, 1994.
4. *Japan Electronics Buyers' Guide 1962,* Denpa Shinbun, Inc., Tokyo, 1962.
5. *Japan Electric Industry* magazines 1962-1964, Denpa Publications.

REVIEWS: WHAT'S NEW IN PRINT

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ZWORYKIN, PIONEER OF TELEVISION

by Albert Abramson, 319 pages, 1995, 6X9 and 1/4 inches, Hardbound, Publisher: University of Illinois Press, Urbana and Chicago, available through book stores.

By Jack Davis
Box 70, Lake Placid, NY 12946

This is a well written entertaining part of the history of television that is long overdue. As the book points out while Dr. Vladimir Kosma Zworkyn never encouraged the appellation Father of Television he didn't totally reject it either.

The truth is that Television was technology in pursuit of the age old dream of mankind to be able to see into places far distant through the crystal ball. Because of this there were many who tried to realize the dream from sorcerers to scientists. But, the dream really only began to materialize with the discovery of light responsive electrical materials and the ability to transmit electrical signals over long distances.

The complexity of the technology required the contributions of many men in many countries who's advances fed and grew from each other. This book makes clear that Zworykin should be viewed not as a soloist bringing only one piece to the performance, but as a conductor who put many pieces together to create television as we know it.

The book chronicles Zworykin's life as an engineer from his early radio days in Russia where he worked under the early Russian cathode ray pioneer Boris Rozing. It then takes us through his studies in Europe where he met and worked with many other television pioneers. The author then details Zworykin's career in the U.S. fortunate both for Zworykin and the emerging American television industry.

The author deals very meaningfully not only with Zworkin's technological problems, but also his political problems. Both the very important politics between the early broadcast and telephone companies (a conflict that is coming to a head again today with the new communications act) and the effects of fascism and communism. I had not realized that Zworykin had been investigated by the FBI as a suspected communist sympathizer. Of course, he was cleared!

While reading this book I was fascinated by the information that Zworykin never approved of the entertainment applications of targeting, medical applications such as the electron microscope which he helped develop and other educational aspects of the machine. This is especially interesting as the man who choose Zworykin to receive the immense investment necessary for television's development was David Sarnoff who's main interest was broadcast entertainment.

There are a number of interesting black and white photos and excellent notes that would help any student of the history of television. This book is important enough that it should go into at least several editions and I would think the first edition will become a collectible on its own.

AWA 1995 OLD EQUIPMENT CONTEST WINNERS

Compiled by Ralph Williams
30675 Main Road, Orient, NY 11957

THE FIRST DECADE 1895-1905

First	Ross Smith	Marconi Coherer, Operating
Second	Tom Brooker	Scheidel Spark Transformer

THE SECOND DECADE 1905-1915

First	Ernie Hite	Bowman Time Receiver
Second	Mike Adams	Harrold Water Cooled Microphone
Third	Peter DeAngelo	Marconi Balanced Crystal Receiver

THE THIRD DECADE 1915-1925

First	Robert MacIntyre	Canadian Marconi Receivers
Second	Clay Seidel	Marconi Victor Telegraphy Course
Second	John Parsons	WW I Radio Magazines
Third	Ross Smith	Steinite Crystal Receiver

THE FOURTH DECADE 1925-1935

First	William Fizette	Iverson, Merchandising the News
Second	Robert Drake	National SW 2
Third	Robert Lozier	Philco 46
Third	Dick Desjarlais	Pastime Miniature Console

THE FIFTH DECADE 1935-1945

Special Award	Chet Wizner	Solid State Wouff Hong

THE SIXTH DECADE 1945-1955

First	Bob Masterson	Sentinel 286 PR and Stromberg Carlson

THE SEVENTH DECADE 1955-1965 — Home Radios

First	Ross Smith	Emerson Model 343
Second	Larry Chestnut	Magnavox AC 5 and Emerson 838
Third	Bob Masterson	Raytheon 9072

THE SEVENTH DECADE 1955-1966 — Other Artifacts

First	Robert Thomas	Hollow State to Solid State
Second	John Parsons	Conelrad
Third	John Jenkins	RCA Advertising Display

THE EIGHTH DECADE 1965-1975 — No entries

THE NINTH DECADE 1975-1985

First	Larry Chestnut	Kenwood TS 820 S
Second	Elinor Williams	Clock Radio Time Mag. Bonus

THE TENTH DECADE 1985-1995

First	Mike Tannenbaum	486 Laptop Computer
Second	Scott MacWilliam	Sanyo Micro Recorder
Third	Elinor Williams	HTX 70cm. Transceiver
Third	Peter Yanczer	Kenwood Dual band Transceiver

SPARK TRANSMITTERS AND ARTIFACTS

First	John Parsons	Early Keys and Spark Gaps
Second	Tom Brooker	Marconi Helix
Third	Frank Eder	Kolster Decremeter
Special Award	Mike Raide	Comer Spark Transmitter

TUBE TRANSMITTERS

First	Mike Raide	Stancor Model 69

RESTORATION OF APPEARANCE

First	A.C. Stoddard	Aeriolas and Amplifiers
Second	Doug Houston	General Electric F 70

RESTORATION OF OPERATION

First	Peter Yanczer	Jenkins Radiovisor

NEW OR REBUILT

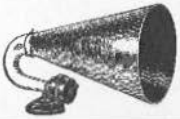
First	Bruce Packham	Spark Xmtr and Crystal Rcvr
Second	Dick Mackiewicz	Three Crystal Sets

EXTRA ENTRIES

Special Award	Bill Holly	Radio Pioneer Autographs
Special Award	Marsha and Jerry Simkin	Radio Pioneers on Stamps
Special Award	Floyd Jury	A Century of Quartz Crystals

Judges: John Caperton, Lawrence Chestnut, Alan Douglas, Peter Yanczer, Ross Smith, Geoffrey Bourne, Scott MacWilliam, Ralph Williams

Administration: Elinor and Ralph Williams



THE LOUDSPEAKER

EDITED BY

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THE FIRST DOZEN RADIO SPEAKER MANUFACTURERS

A review of *Radio News* and *Radio* magazines in 1921 and early 1922 indicates the first dozen radio speaker manufacturers to advertise were:

Arnold, J.F.
Boissonault, G., Co.
Firth, John and Co.
Federal Telephone & Telegraph Co.
King
Magnavox Co.
Phonetron
Radio Service and Mfg. Co.
Rhamstine, J. Thos.
Riley-Klotz Co.
Telephone Maintenance Co.
Westinghouse Electric & Mfg. Co.

J.F. Arnold was a very early horn manufacturer and made a horn device before World War I. In February 1922 Arnold advertised a small bell (3-inch diameter) on a short straight neck instrument mounted in a wood base. The price was $15.

G. Boissonault Co. made a small 12-inch high straight neck horn speaker. The first advertisement appeared in September 1921. It sold a model 50 and a model 60 and did very limited advertising. Little is known about the company's products.

John Firth and Co. used the trade name Firco and advertised considerably in late 1921. The company sold an experimental-type horn speaker (the horn was mounted on a vertical rod supported by a base metal stand) and a station-type style which was mounted in a cabinet. ($30). Firth used Baldwin "C" drivers. The station type horn was sold by a number of retailers who advertised the Vocaloud rather extensively.

Federal Telephone and Telegraph Co. announced a Pleiophone No. 400W at $14 in September 1921. It was a short straight neck horn speaker. This company also did little advertising of its speaker product.

King announced the "Am-pli-tone" for $12 in March 1922. The company offered a cast, polished aluminum body and nickel plated base and bell. It required a headset (pair of earphones) clamped onto two rubber grommets. The air columns merged into one at the base. The bell was 7inches in diameter and the horn was 14 inches high. This horn has become one of the highly sought after early horns. It has a very pleasing shape and appearance.

The Magnavox Co. which had made horn speakers from the mid-teen years was in the radio marketplace by mid-1920 with a 6-inch diameter bell horn horn, R2-A. The R3-A and R3-B were being marketed in 1921. The R3-B (early) 1921 was a straight neck, smooth with black paint and a 14-inch diameter bell. It was followed in 1922 by the R3-B (late) goose neck with wrinkle paint and a 14-inch diameter bell. Maganvox drivers used electro-dynamic driving voice coil units. In 1922 Mapavox brought out an R2 with an 18-inch diameter bell. (See "A Collector's Guide to Magnavox Horn Speakers," in the Decemberr 1980 issue of *OTB*).

In 1921 Continental Radio and Electric Corp. sold a unique speaker for its time called the Phonetron. It was a cone speaker and was advertised as a sound converter, (electrical energy to sound or sound to electrical energy). It had a dynamic field coil and with a six-volt storage battery connected to it. The field consumed 2½ amps which was a very heavy current drain. (The Magnavox field coils, in comparison, drew one ampere or less.) It was advertised for $45.

Radio Service and Mfg. Co. first advertised a horn speaker in December 1921. It was called the Amplitron. It used a Baldwin Type "C" earphone mounted onto a small megaphone chamber pointed into a large concave cone reflector. It could be called a re-entrant horn speaker. The speaker less driver was priced at $10, and with a Baldwin "C" driver for $16.25.

J. Thos. Rhamstine advertised an "Adapt-O-Phone" in February 1922. It used a pair of earphones (headset) clamped onto the two small air column posts at the base of the horn. The air column merged at the center of gravity at the base and rose vertically to a small bell opening at the top of the 20-inch high horn. The wood base, the cast manifold and Japan-black painted neck gave this horn a distinctive shape. The horn sold for $12 less driver. Soft rubber sleeves were on the air column posts.

Riley-Klotz Mfg. Co. brought out the "Arkay" loudspeaker in February 1922 for $5 with black enameled finish, or full nickel finish for $6.The base looked like an old-fashioned oil can. The neck did a full circle and the small bell opening was turned at right angles.

Telephone Maintenance Co. announced the Telmacophone in March 1922. The company offered the Baldwin "C" driver unit and horn for $20. The horn used the re-entrant shape and seemed to have an exponential shape to its outer bell. The small, C-shaped neck support and web-shaped foot base made the unit pleasing in appearance.

In early 1922 Westinghouse Electric and Mfg. Co. announced the "Vocarola." for $30. It was shown with the RC receiver made by Westinghouse. (See OTB, March 1986, for more history about the Vocarola and where it came from.) The horn was advertised very little and if the reader missed the February 1922 issues of Radio News and Radio he probably missed seeing the Vocarola's ad.

This ccould not be completed without reference to Western Electric (WE). The company had been in the speaker design business since 1907, but did not advertise in early radio magazines. WE sold only to dealers, wholesalers and merchandising outlets, and did little advertising through consumer magazines. The company had a number of horns on the marketplace in the early 1920s. (See article on WE in thr June 1981 issue of *OTB.*)

Some other companies to advertise radio horn speakers in late spring 1922 were:

Standard Metal Mfg. Co.
Sohn and Co.
Radio Electric Co.
American Radio Equipment Co.
Ryan Radio Co.
Radio Appliance Co.

In summary, it is interesting to note that.of the first dozen manufacturers, Continental Radio and Electric was a cone speaker manufacturer while the rest made horn speakers. Whether the exclusive distribution through one Company hurt the sales, whether the pnce was too high or whether a patent infringement (possible with Magnavox) caused the product's demise is not known. Also, note in the first dozen manufacturers, the Baldwin "C" earphone was standard equipment for four of the manufacturers and was undoubtedly made available from some of the others. (See "Baldwin Earphones," December 1983, *OTB.*)

IS IT 1929 AGAIN?

© Robert L. (Bud) Larson, W7LNG
1325 Ridge Way, Medford, OR 97504

Our heroes, Carlos Espinoza and Jeremy Taylor are teenaged radio amateurs. Jeremy's father, Leon, had been given permission to search the old Roman Bros. Department Store for anything of value such as a long-forgotten antique. The building was slated to be torn down soon for a new shopping mall. Leon left the searching of the attic to the boys.

The Roman brothers had closed the store years ago. No one in the family wanted to continue the business during the depression. Then the war... Now it was the 90s and the run-down part of town was being cleared. Old, frail Mrs. Roman remembered Leon from long ago and invited him over to get the long unused key to the back door of the faded brick building. Early one morning on his way to work Leon took the boys to the building, unlocked it and left with a warning: "Be careful."

It was almost pitch black in the old attic. Cobwebs and dust were everywhere. Crunch!

"Oh, darn!," exclaimed Carlos.

"What is it?" Jeremy inquired, holding steady so he wouldlnt step on a similar object.

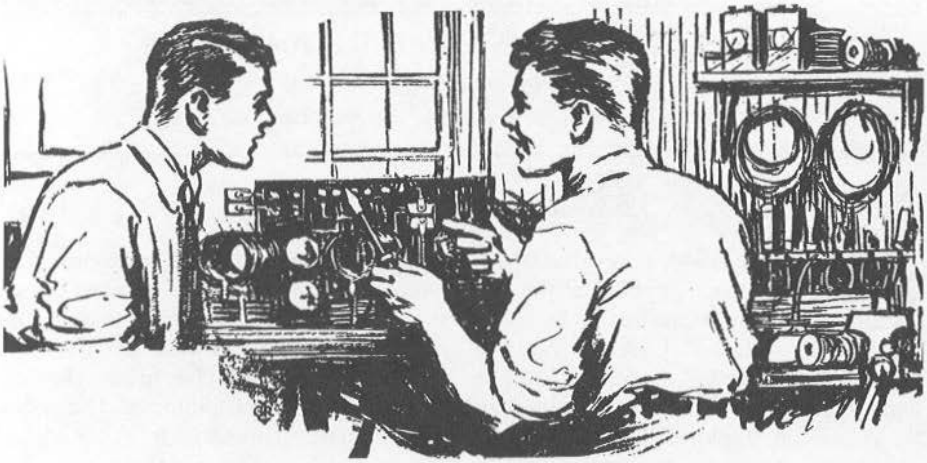
"Shine the flashlight over here, Jeremy. See that carton I just stepped on? It's a Cunningham C350 tube, smashed! Old-Time Electronics in Arizona would have given us some bucks for that one. Too bad! Let's see what else we can find in this creepy place." Carlos said as he pushed aside some dusty boxes to reveal a dark broken door emblazoned with the letters "7ZZ." He pulled open the door to the screech of rusty hinges.

"Wow! Look at that. I bet it's an old ham radio station."

"Yeah, Carlos." Jeremy said. "I remember dad talking about hearing of an early-day ham radio station. I didn't imagine it was up here, though. I bet it's over 60 years old. See the copper tubing coil, and let's see, yeah, a UX 210 tube. This must be the transmitter. Grandpa used to tell us about those triodes used back in the 20s. Some guys would run them red hot. I bet the note they put out was terrible."

On the right side of the old, dust-covered bench was a small black panel with two National Velvet vernier dials. Behind it on a board were tio old globes with UX-201A on them. Between the tubes were mounted the basket-weave coils of the low-loss Schnell circuit. A pair of Baldwin phones hung from a coat book and a rusty hand key was screwed down in front of the transmitter. The breadboard "rig" was hooked to an open-frame transformer. The rectifier tube and Mershon electrolytic filter were still there. The stripes on the receiver's batteries were still recognizable. An open notebook listed the calls made so many years ago. It was as if they had traveled back to 1929.

Since the building was to be torn down, Jeremy and Carlos carefully packed the equipment in boxes and carried it down the narrow stairs. It took some time to get the old stuff down and carried to Jeremy's place.



Some time later the boys laid out the receiver on Jeremy's workbench. They used a squirt of WD-40 on the dials and tuning "condensers"" of the old regenerative receiver to free them up so they could turn again. Jeremy had blown off the dust and had polished the black panel. It was shiny again. The regulated five-volt power supply ties connected to the Fahnestock clips marked "FILS" and the warm glow of the old triodes greeted the modern-day adventurers. Setting the bench power supply to 45 volts, Jeremy hooked it to the binding posts labeled B+ and B-. The old phones let out a squeal."

"I guess it's going to work, Carlos. Let's string out some of this hook-up wire over to the door for an antenna." Jeremy said, trying to contain his enthusiasm.

"What do you thing you'll hear?" Carlos asked.

"Let's see," said Jeremy as he slid the "Baldies" over his ears. He had read about regenerative receivers and set the control to the point where the squeal was gone and the gentle "plop" and hiss greeted his ears as the set went into oscillation.

"Chow pit, chow pit, chow pit, chow." It was W6NVN, down in Arizona. The band seemed to be filled with old-sounding CW this evening. They were sending slow so the general-class hams could piclk up quite a few calls. The notes itere sort of harsh, some wobbly, some chirpy.

"Carlos, I think I tuned in 1929 like that last entry in the old log book. Listen."

Carlos sat down and started to write what he was hearing. Calls from all over the U.S. describing their equipment: Hartley, TPTG, TNT. "What's that, Jeremy?"

Just then Mr. Taylor drove up. "Hi, boys. What's going on?"

They explained their "find" and how they had got the old receiver going.

Leon Taylor then told them of what he had heard when he was young; how young Vern Roman had gone off to college, never to return. He even knew why those chirpy signals were on the air. "This must be the Antique Wireless Association's 1929 contest. Let's got out some dinner and I'll tell you about the old days."

A BRIEF, TECHNICAL HISTORY OF THE VOA NETWORK

By Fred Wulff
6551 Columbia Pike, Annandale, VA 22003-2066

THE EARLY YEARS: 1940 TO 1945

On Aug. 16, 1940, a presidential executive order established the Office of the Coordinator of Inter-American Affairs (CIAA). Nelson Rockefeller was appointed coordinator of commercial and cultural relations between the American republics. Rockefeller was concerned about the large investment in HF international broadcasting by many other nations, especially Germany, and the weak HF signal that US broadcasters were delivering to Latin America. US transmitters were low power and had wide beam antennas while European transmitters were high power and had very narrow beam antennas. Furthermore the number of HF receivers in Latin America was small and listeners tuned into local radio stations for local news.

The CIAA first considered a joint incorporation of all existing domestic HF broadcasters and wanted to upgrade their capabilities. That was seen as impractical because they were all losing money anyway. NBC already had working relations with a number of station in Latin America and CBS was completing a Latin American network of 60 stations.

The CIAA authorized a radio news program in April 1941. CBS prepared the news programs and AT&T began delivering them to local affiliates in Latin America on radio telephone (point to point single sideband radio), the first placement programs.

All broadcasts of the CIAA were aimed at Latin American countries from when it was formed until its broadcasts were transferred to the Interim International Information Service in August 1945.

The agency changed its name twice without any real alteration of either structure or function. The CIAA was terminated on May 20, 1946. The CIAA administrative offices were in the Department of Commerce building. The radio section operated primarily from 444 Madison Ave. in New York City.

Jurisdictional problems in radio broadcasting developed in late 1941 with the Office of the Coordinator of Information (COI) and in mid-1942 with the Office of War Information (OWI).

Rosevelt created the COI on July 11, 1941. It assumed responsibility for using international broadcasting to achieve morale objectives abroad. Its leadership chose to use information instead of falsehood to make US short wave radio and effective political warfare weapon. The COI began providing scripts to existing short wave stations by teletype wire and asking them to use the scripts. It also acquired foreign language broadcast announcers and used two KEGI studios in San Francisco. At this point the government had no stations of its own nor had it leased any stations for broadcasting.

John Houseman became chief of the Foreign Information Service (FIS) radio production division of COI in January 1942. The first broadcasts from 270 Madison Ave. were on February 25, 1942, at 2:30 a.m. in German. It was point-to-point to London where it was received by the BBC and broadcast to Germany on medium wave. At noon, Robert Bauer read his script in German which refered to "Voices from America." A few months

later, the FIS was given the official title, The Voice of America.

OWI was formed on June 13, 1942, by Executive Order 9182 and soon absorbed the FIS of the COI. On Oct. 31, 1942, the CIAA and the OWI announced that the short wave broadcasting facilities of the major companies operating in the U.S. had been leased for the duration of the war. On Nov. 1, 1942 the OWI and the CIAA assumed control of all short wave stations. CIAA agreed to pay one third of the costs and OWI the remainder. OWI assumed the cost of facilities expansion. CIAA purchased the studio facilities of KGEI in San Francisco.

When the OWI was eliminated at the end of World War II, the VOA was transferred to the State Department. America's international broadcasting "voice" remained under State Department supervision until 1953, when then President Dwight D. Eisenhower consolidated all U.S. overseas information activities into the United States Information Agency.

THE RELAY STATION NETWORK

By Fred Wulff

The Bureau of Communications Facilities of OWI's overseas branch leased existing HF transmitters while it began building Bethany, Dixon, Delano, Honolulu, and Saipan. Their purpose was to broadcast to Europe and the Far East.

At the time Pearl Harbor was attacked by the Japanese, on Dec. 7, 1941, the FCC had previously licensed the following six organizations to operate a total of only 11 shortwave international broadcast transmitters:

Columbia Broadcasting System
Crosley Radio Co.
General Electric Co.
National Broadcasting Co.
Westinghouse Electric Co.
Worldwide Broadcasting Corp.

The first five began as medium wave broadcasters with adjacent studio facilities and later added shortwave transmitters to their facilities. Worldwide Broadcasting Corp. was exclusively shortwave with studios in Boston and transmitters in Scitutate, MA. Each company had different types of transmitters built by different companies or used their station's staff to design and build the transmitters.

OWI now originated programs in its east coast studios with a master control on the seventh floor of the General Motors building on 57th Street in New York City and used the following transmitters under contract with the licensees. Program feeds were by AT&T telephone program circuits to each station.

Crosley Radio Co., Mason, OH (very near Bethany R.S.): One 50 kW collocated with its 50 kW MW transmitter WLW, designed and built by its station staff. Studios were in Cincinnati. It had one rhombic antenna. When KFAB in Lincoln, NE, replaced its MW transmitter, the power supply and modulator were taken to Mason where the Crosley and KFAB engineers added a 50 kW HF power stage giving this station two 50 kW transmitters.

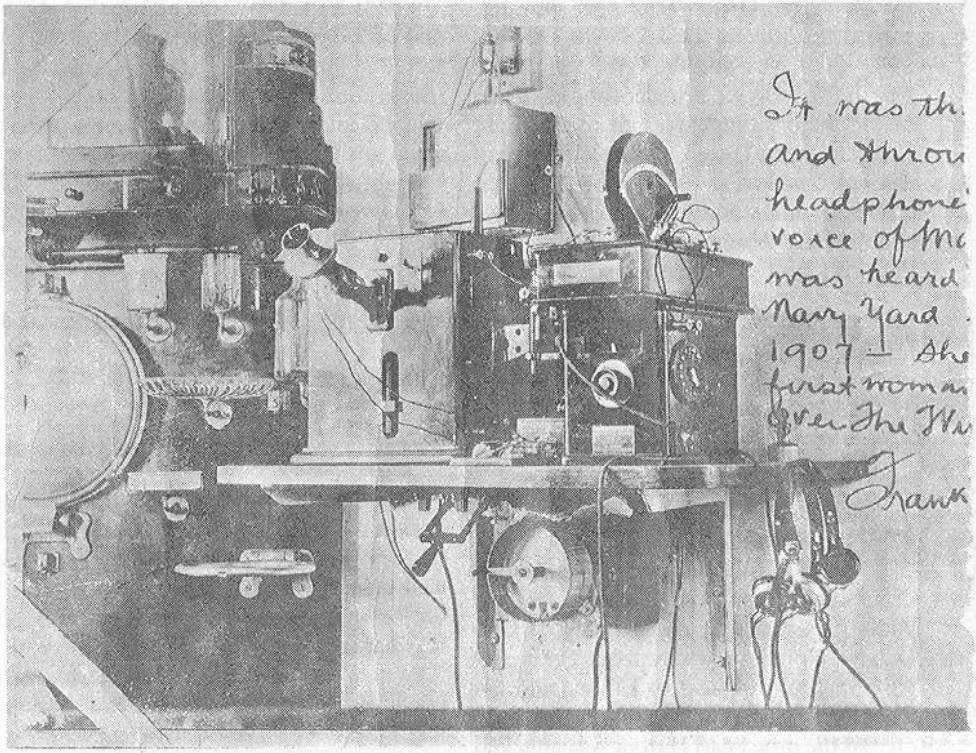
General Electric Co., Schenectady, NY: One GE 25 kW HF transmitter collocated with its 50 kW MW GE transmitter "WGY".

National Broadcasting Co., Bound Brook, NJ: Two modulators and three

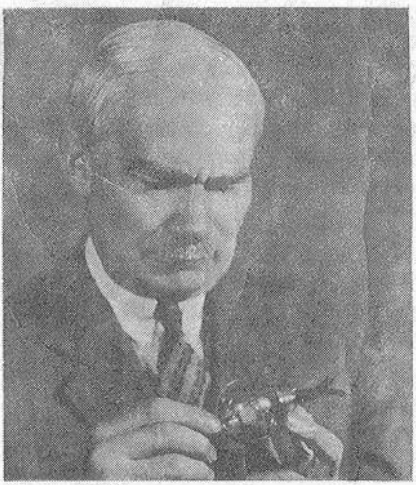
Continued on page 32

SOUVENIR OF 17th ANNIVERSARY

FEBRUARY 7th, 1969 AT FRAL



One of the 24 sets of wireless telephones invented by Lee DeForest and installed on the ships o that went around the world December 16, 1907 - February 22, 1909. O. A. Wyckoff was wirele Wainwright's ship, U. S. S. Louisiana.



DR. LEE DE FOREST

Father of Radio

Invented the Audion

(Radio Vacuum Tube)

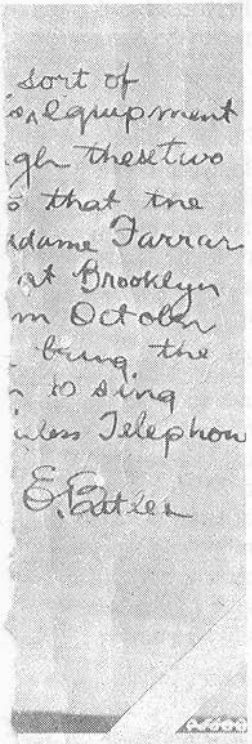
THE ROLLER CHAIR RADIO

First Sporting Event broadcast being received by O. A. Wyckoff's roller chair radio on the boardwalk, Asbury Park, New Jersey, July 2, 1921.

OF THE De FOREST PIONEERS

INCES TAVERN, NEW YORK CITY

OBT thanks to:
Ralph Formica, WA2EBS
1300 Greenbriar Lane, North Bellmore, NY 11710



f the Great White Fleet
ss operator on Admiral

Madame Eugenia Farrar who sang "I Love You Truly" as the first broadcast from Dr. DeForest's laboratory in New York City. While the U.S.S. Dolphin was in the Brooklyn Navy Yard Oct. 1907, O. A. Wyckoff received her voice over the wireless telegraph to the amazement of all.

OLIVER A. WYCKOFF
In his office at Bellmore, New York with bust of Dr. DeForest and banner of Great White Fleet entering Yokohama Harbor, Japan. Taken Jan. 1969.

— RELAY STATION NETWORK

Continued from page 29

RCA 50 kW transmitters into curtain antennas aimed at Europe, South and Central America.

Columbia Broadcasting System, Wayne, NJ: CBS had earlier moved its MW transmitter out of its station. OWI arranged with the FCC to license CBS for a shortwave station there, moved two stored RCA 50 kW transmitters to Wayne, and erected rhombic antennas. The RCA 50 kW transmitters usually came with one power supply and modulator and two RF stages for quick changes in frequency. OWI installed only one of the two RF stages in many places to have more 50 kW transmitters. OWI thus began a long lasting paradigm, which is still in place in Greenville, of allowing 15 minutes to retune an HF transmitter.

The above stations remained in service until the Greenville Relay Station replaced them in 1963. OWI then began an expansion program. It purchased and installed:

Worldwide Broadcasting Corp., Scituate, MA: Two 50 kW RCA transmitters installed by the station staff.

CBS, Brentwood, NJ: Two 50 kW RCA transmitters.

General Electric Co., KEGI, Beltmont, CA, (near San Francisco): In 1941, GE added a 50 kW HF transmitter to its existing 50 kW MW transmitter, KPO. It had curtain antennas aimed at South American and Asia. OWI added one GE 100 kW.

Malolas, Phillipines: Two RCA 50 kW HF transmitters each with dual RF sections.

OWI established west coast studios and a Master Control at 111 Sutter St. in San Francisco to feed programs to the stations at Hunter's Point, to KGEI at Belmont, and later to stations at Dixon and Delano, CA. This facility was closed in the latter part of 1946. Personnel and programming were transferred to the New York office.

OWI contracted with Federal Telegraph Co. for a 200 kW HF transmitter at Dixon and another for Delano. In addition, Federal Telegraph built two class B modulators to simultaneously modulate two RCA 50 kW transmitters, made available when some of the dual transmitters were installed with only one RF side.

Algiers, French Morocco.

Bethany began broadcasting in July 1944 and had all six transmitters in service in the Fall of 1994, just before the Battle of the Bulge. It had 24 rhombic antennas on a square mile of land. It had three 300 kW modulators and power supplies each capable of modulating two of the six 200 kW RF channels. Each RF channel could be on a different frequency.

Delano began broadcasting in November, 1944 and Dixon began broadcasting on Dec. 27, 1944. Both had four rhombic antennas targeted at Australia and Japan/Philippines. These antennas were later augmented with four 2 X 4 curtain antennas.

Medium wave broadcasting to the far east began two days earlier on Christmas day from a 50 kW transmitter on Saipan (KSAI) fed by two 100 kW HF transmitters in Honolulu (KRHO).

Bethany was built in two years, Delano and Dixon in one year, and Saipan in three months.

Radio News OF CANADA

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THE HISTORY AND DEVELOPMENT OF THE ROGERS BATTERYLESS RECEIVING SET

By Gordon E. Pipe, Associate, Institute of Radio Engineers

Reprinted from the November 1926 edition of *Radio News of Canada*

Anyone who has been in the radio sales game for any length of time has had some prospective customer say that when there was a radio set to operate from the lamp socket, he would purchase. Very likely while he was making such a remark, our engineers were working to that very end.

About three years ago development work was started on the A/C tube, as development work progressed step by step patent protection was obtained, and about six months later a plant was equipped for the manufacture of these tubes on a commercial basis. The next step was the design of sets to use the A/C tube. These sets used batteries for plate supply, and were operated a year and a half before being placed on the market. During this 18 months' period of development, thousands of experiments were made, which proved conclusively that [the] A/C tube was a thoroughly sound, commercial proposition.

The first sets equipped with A/C tubes used "B" and "C" batteries, the "A" battery alone having been eliminated. It was very obvious that a set having no batteries at all would find the best market. Therefore, the next step was to design a satisfactory "B" battery eliminator for the sets. At this next stage, the "A" and "B" substitutes were in separate units; then came the problem of assembling them into one compact unit, in the same cabinet with the receiving set. The first efforts to do so were unsatisfactory, due to the heavy fields set up by the various transformers and chokes. It was found that both the RF and audio circuits were influenced by the alternating current. In addition to this, after the alternating current had been rectified and filtered, the direct current was modulated in the choke by the field from the transformer. All these things had to be overcome; and they were. By careful placement of the various parts, the use of proper shielding, the redesigning of the cores for the transformers and chokes, the troubles were conquered, and last year we

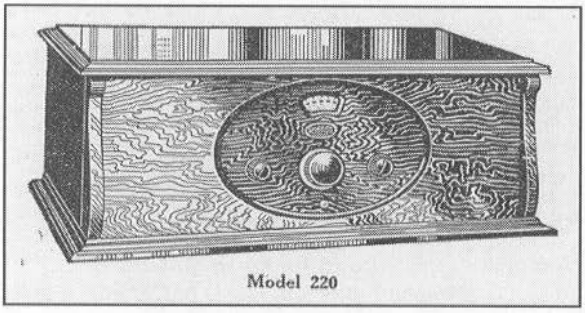
Continued on page 34

Editor's Note: This article was submitted by N.C. Batch, 463 Manor Rd., East Toronto, Ontario M4S IT3 Canada,. He personally knew the author, Gordon E. Pipe, who became a silent key several years ago.

— BATTERYLESS RECEIVERS

Continued from page 33

were able to give you the model 120 and the console sets. I mention this lengthy period of development to show you that the Rogers Batteryless sets are not products rushed out on the market to meet competition but are the result of a slow, sure development of an original idea, along the line of sound engineering principles. But it must be borne in mind that during the development of these sets, there was no well defined trail of experience to follow. It was all pioneering work, in almust every case the problems had to be solved by entirely original methods, and original work of this nature requires a great deal of time plus an enormous amount of patience and persistence.



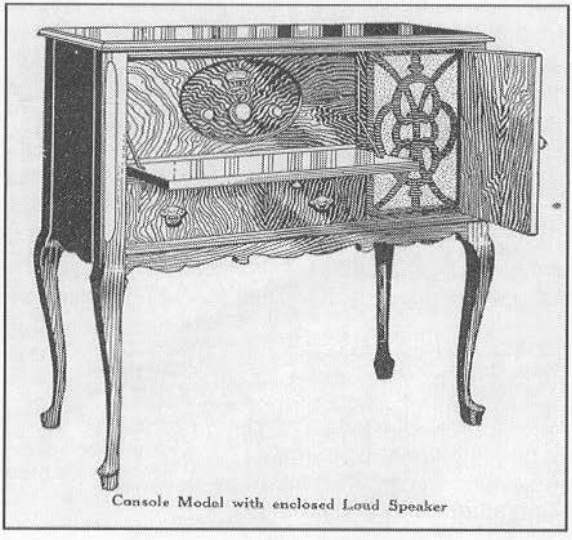
Model 220

As you know, the cry for many years was that it was impossible to design a set which would operate satisfactorily from the light socket; from all sides we heard that we were attempting the impossible, and even after the sets of last year were placed on the market and operating perfectly satisfactorily, some still said it couldn't be done, and attributed our success to some kind of luck. These people remind me very much of the Irishman at the summer resort, when he saw a man packing a very large fish in a crate with ice and grass. After staring at the huge fish, he said: "The man who caught that fish is liar."

You are all familiar with the results obtained with the various models of last year, so that we will pass on to the development of new sets, but before doing so would like to point out that the exceptional volume and quality of these sets was to be attributed to the use of the Canadian A/C tubes produced in Canada, under the supervision of Mr. E.S. Rogers.

In designing the sets for this year, we have used to advantage the experience gained from the operations of thousands of sets in users' homes. Some of the refinements which have been made are as follows:

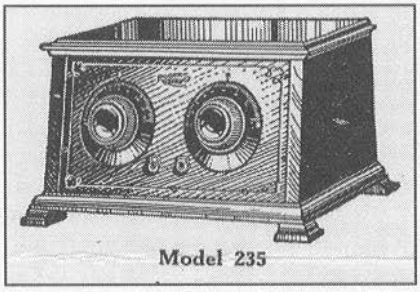
1. In the power unit, the tap switch and rheostat used to control the A/C heater and rectifier filament voltages respectively have been done away with, and all volt-



Console Model with enclosed Loud Speaker

ages, A, B and C, are controlled with one master rheostat, placed in the metal case, where there is much less possibility of its being tampered with.

2. The voltmeter has been designed which clearly shows the normal operating point, with a red block which indicates higher voltages which might injure the tubes.


Model 235

3. The C battery has been done away, with the two "C" potentials from the power unit are substituted, which bear the proper relation to the applied plate voltages. This results in greater sensitivity, louder signals and quality heretofore unheard of and unrealized.

4. Last year the power unit supplied three voltages to the set while this yeat it supplies six; the "A" or heater voltages, three "B" voltages and two "C" potentials. One of the "B" voltages feeds the new power tube. Careful design and the proper application of "B" and "C" voltages means that the current taken from the line is barely noticeable, as a matter of fact with normal broadcast use, the total cost of power for the set for a month would not be any more than 15 cents. When one looks at the neat little power unit, it seems difficult to realize that it entirely eliminates the large six volt radio "A" battery, three blocks of "C" battery, and almost four 45-volt blocks of "B" battery.

In the receiving set proper many refinements have been made. it was f elt that for this year, it was essential that some form of simplified tuning control be produced. A single dial control set has therefore been evolved.

In order to procure a single dial set, it was necessary to develop some means of connecting the three condensers. We therefore designed a unit, in which the three condensers are mounted on a metal panel, and are connected together by means of metal belts and metal pulleys. The belts are riveted to the pulleys so that there is no slip or lost motion of any kind. To rotate this condenser unit we made a venier control, which permits slow, careful tuning, with absolutely no blacklash so often characteristic of gearing methods. Additional refinements, which will be briefly covered are as follows:

1. A completely shielded detector and audio unit, which precludes the possibility of alternating current noises being picked up by the low frequency stages.

2. A special power tube in the last stage, resulting in great volume with absolutely no distortion. This tube has a good amplification constant which permits it to be used immediately after the first audio stage, instead of having to use two stages in order to excite the power tube. The very low output impedance of this tube results in the reproduction of the low frequencies with new fidelity of tone.

WCC — WIRELESS CAPE COD

By Harry R. Hyder
1638 W. Inverness Drive, Tempe, AZ 85282-3451

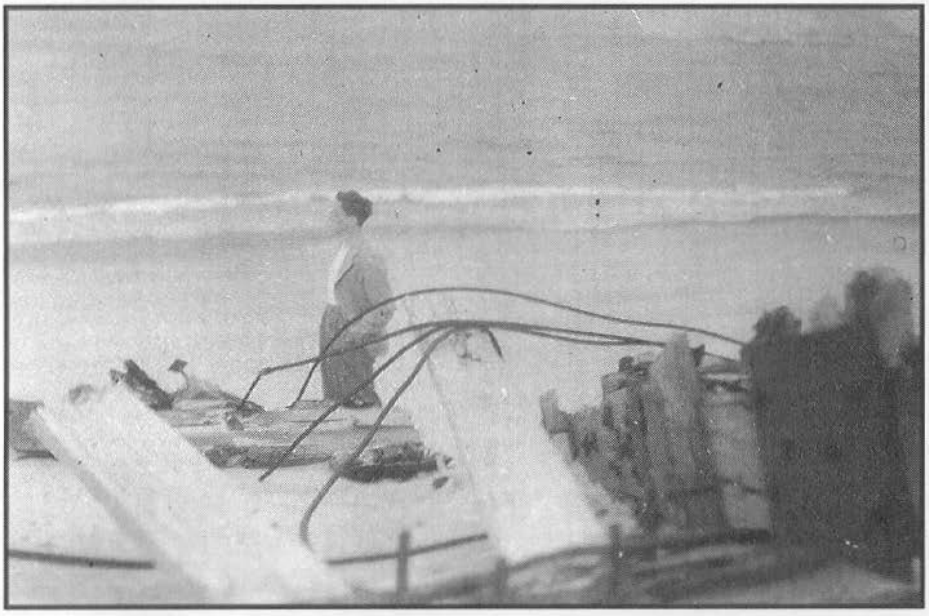
The Marconi Company built a station in South Wellfleet on Cape Cod in 1903. It used the call "CC" for obvious reasons. In 1912 when international prefixes were assigned the station became WCC. The station, with occasional improvements in equipment, continued operation until 1917 when it was taken over by the Navy.

After the war, American Marconi was absorbed by the newly-formed RCA. Apparently RCA did not want the station, since by that time its equipment was obsolete. The Navy did not want it either, so the Navy demolished it.

The story of the demolishment of the station was told by Irving Vermilya in the February 1920 issue of *QST*, reproduced on the next page. Additional information by an anonymous writer appeared in the August 1920 issue of *QST,* together with some photographs of the station during its pre-war heyday.

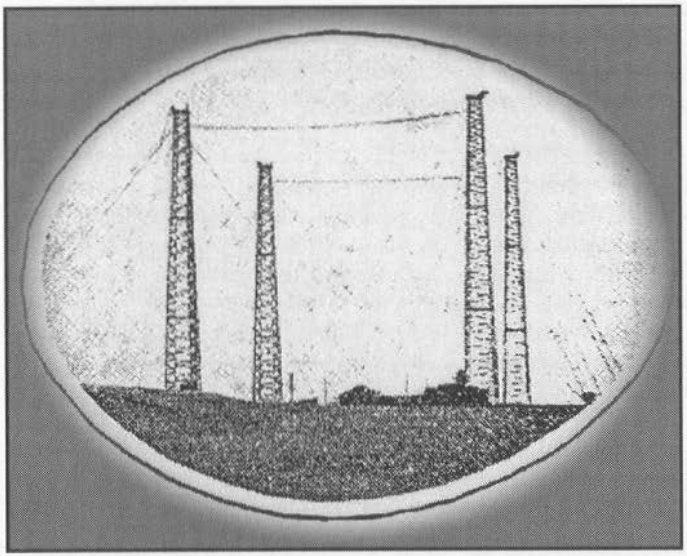
RCA Radiomarine later built a new station on Cape Cod, first at Marion and later at Chatham. The call letters WCC remained in use, plus WIM. The latest station operated on many frequencies, from 111 KHz to 22,300 KHz. This station was in operation until fairly recently.

In late 1945 my wife and I took a vacation trip to Cape cod. The owner of the house where we stayed was an old-timer on the Cape and remembered WCC. He offered to take me to the site of the station and naturally I accepted. All that was left at that time was a small portion of one of the 200 foot towers, just a tangle of wood and cable. The photograph be-



low shows what was left. Everything else had been carted off over the years.

Before World War II I remember copying WCC on some of its frequencies from my home on Long Island.



WCC had four wooden towers 200 feet high, set at the corners of a square about 300 feet on a side, with the power house and radio room in the center of the square.

THE PASSING OF OLD "WCC"

Marion, Mass
Dec. 15, 1919

Editor, QST:

Have received several letters from amateurs asking why they do not hear old WCC any more, so thought it might not be amiss to write a few lines explaining the reason.

It's a good reason, but a sad one, boys. None other than that the U.S. Navy purchased this station from the Marconi Co., and instead of using it, they entirely dismantled it. Yes, flat to the ground. The engines were frozen up and allowed to burst the water jackets during the last few days of the Navy's work there, and now all that remains there are the two buildings, the bare station, and the bungalow.

Every article was positively taken out and junked. The engines, generators, batteries, d.c. machines, lathe, transformers, etc., — even the door knobs taken off and the water pipes pulled up out of the ground. The towers are all down. They were given away for the wood that was in them, as payment to the man who took them down. It's quite apparent the Navy decided this station should not be heard again, for they sure made a complete job as far as a wreck was concerned.

Could that station talk, it would tell many interesting tales... It did transatlantic work in its early days as was a home for many, many old-time operators. It spoke for Marconi and it spoke for Roosevelt. It was the amateur's friend. Many of the operators of today learned copying old WCC. "Old Reliable" was sure the name for it. The idea was to start at ten fifteen or die in the attempt. It never died while Marconi had it.

Irving Vermilya

ODDS & ENDS WITH...

Bruce Kelley, W2ICE
59 Main St., Bloomfield, NY 14469

AWA TO RECREATE FIRST TRANSATLANTIC SHORT WAVE TRANSMISSION

Radio history was made in December 1921 when, for the first time, radio amateurs spanned the Atlantic on short wave. Don't be misled, however. In those days short wave was anything under 500 meters!

The occasion was a series of one-way transmission scheduled by the ARRL with their representative, Paul Godley, in Scotland listening for American CW and spark signals. Godley used an Adams-Morgan Paragon RA-10 and the newly designed superheterodyne for receiving. The event is well documented is *QST* for February 1922.

The outstanding signal and the first to send a complete message was 1BCG, a station built and operated by members of the Radio Club of America. Now, AWA has accepted the challenge of building a replica transmitter and having it operable in December. The scheduled operating times will be Saturdays on Dec. 2 and 9, from 7 p.m. to midnight EST on or near 1815 kc using the call W2AN. Construction and operation will be handled by Bob Raide, W2ZM.

QSL to AWA, 59 Main St., Bloomfield, NY 14469.

PRIMARY KEYING AT W2RAN

Much interest has been shown in the bell-like tone from W2AN's 1937 transmitter. Here's the story:

We wanted a distinctive pre-war signal, and the answer appeared to be primary keying, a type of keying which goes back to the earliest days of CW. The easiest approach is to place a key in the primary of the high voltage plate transformer. This was tried with mixed results since the contacts tended to arc and stick. Consulting the *1941 West Coast Radio Handbook,* page 186, turned up a better method: grid-controlled rectifiers. Two early such tubes (Thyratrons) were located in the museum tube collection and substituted for the conventional rectifier. The result was a pleasing, distinctive note.

The tubes are similar to 866s except for a grid between the filament and plate which cuts off the flow of plate current when a small bias of 9 volts is applied. An insulated keying relay is needed since this part of the circuit is above ground potential.

The tone can be determined by the amount of filter used. At W2AN the plate and screen voltage of the single 807 is keyed with a 2 mfd. filter. The oscillator runs continuously while keying.

THE TICKLER DIAL

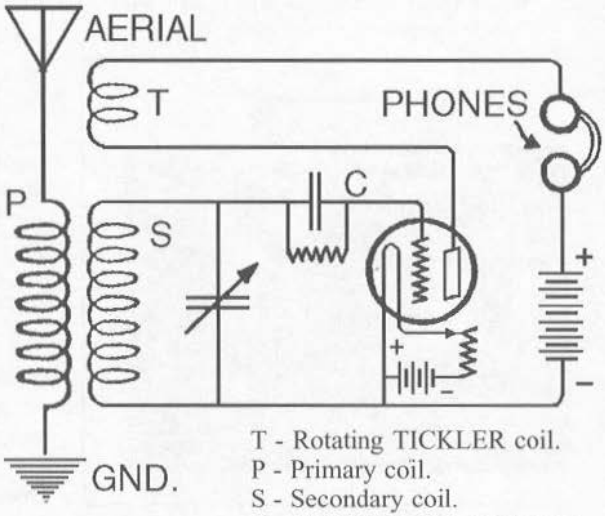
Between 1921 and 1925 the regenerative dectector was a popular circuit for broadcast receivers. It became a miniature transmitter, however, if allowed to oscillate and caused "whistles" in nearby receivers. The following is a 1923 newspaper account of how this annoying situation may be avoided. (The tickler coil is the feedback coil that causes the set to oscillate.)

"If the dials of a regenerative set are carefully handled, there is no reason why the set should radiate and cause ear-piercing whistles. Every user of a regenerative set should remember to turn the tickler dial slowly and carefully. He should never twist it quickly, for if he does, he will be making himself the nuisance of the neighborhood.

"The dial that causes all the trouble is the one that controls the tickler coil, in the majority of sets, or the plate variometer in some of the more old-fashioned outfits, The radio fans know from experience that the best position of this dial is reached gradually, unlike that of the condenser tuning dial, which is quite sharp in its setting. Now, the trick is to handle the condenser with one hand and the tickler with the others, in such a manner that the sound in the phones caused by the movement of the tickler is always a soft hush. It will be found that by turning the dial just a little more the hush will end in a sharp click. It is when this click is heard that the set is "oscillating," and at the same time causing a squeal to be sent out."

— Author unknown

TICKLER CIRCUIT



T - Rotating TICKLER coil.
P - Primary coil.
S - Secondary coil.
C - Variable tuning condenser

"A nusiance in the neighborhood..."

ART DECO THEME OF THIRD ANNUAL RADIORAMA

By Bob Sands
40 Dow Court, Fairfield, OH 45014

"The finest display of deco radios I have ever seen," was the unanimous comment heard when viewing the display of Art Deco/ Streamline period radios at the third annual Radiorama.

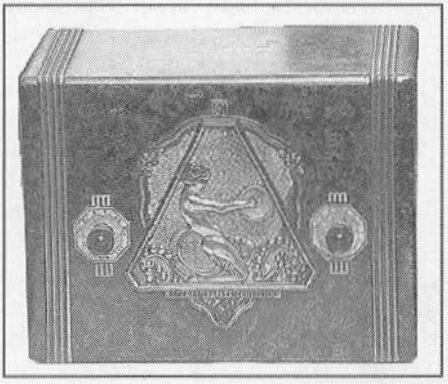
1939 RCA, the cabinet of which depicts the New York World's Fair of the same year.

This meet, sponsored by SPARK, is held on the third weekend of June in Cincinnati and features a tour of Gray's History of Wireless Museum, conferences, an outdoor swap meet and a display of radios on varying themes.

The Art Deco theme of the late 20s and 30s was chosen because it encompasses a majority of the finest radios ever produced combining exotic styling, chromed chassis, mirrored cabinets, 20-plus tubes, 18-inch speakers, tweeters, dual amplifiers, variable bandwidths, etc.

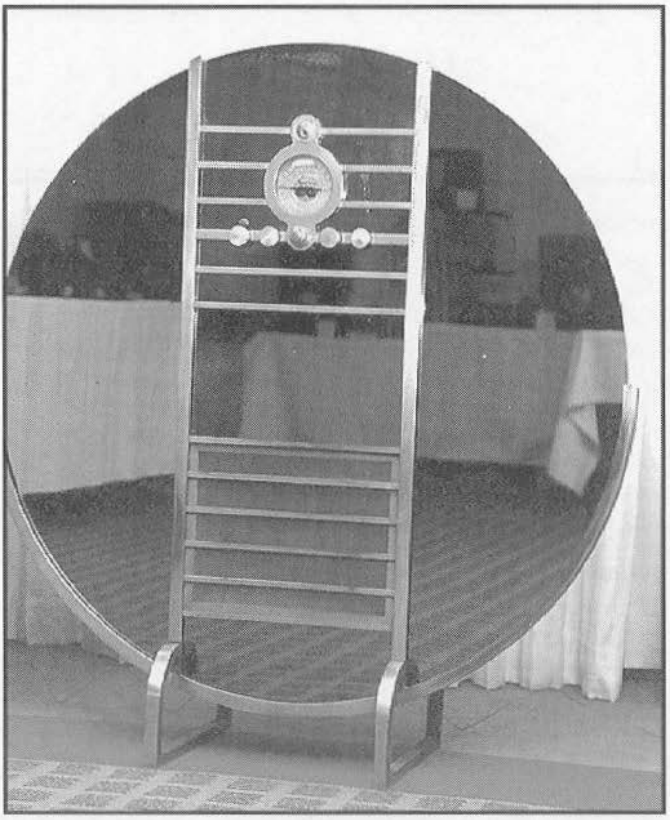
Among the display were a Scott Philharmonic in a Roslyn cabinet, a Sparton 1476 designed by Walter Dorwin Teague, the famous Sparton Nocturne, a Zenith Stratosphere and a McMurdo-Silver Materpiece V in a Norwich cabinet, all side-by-side. Truly a one-of-a-kind display coordinated by Peter Palm.

A large crowd of radio enthusiasts were presented with a slide presentation of the design and construction of the famous 500 kW transmitter of WLW. Clyde Hoehnle and Ed Dooley conducted the in-depth presentation since both were former engineers with the station. The highlight featured the actual lightning ball



This 1933 Stewart-Warner radio's cabinet depicts the Chicago World's Fair.

Editor's Note: Bob Sands was chairman of Radiorama and is a trustee of both SPARK and Gray's History of Wireless Museum.



The blue mirror disc dominates the 1936 Sparton Nocturne 1186, and reflects the display tables elsewhere in the room.

from the top of the tower which, when analysed by G.E., was found to have sustained a current of 250,000 amps in one strike.

The question and answer period was lively since items were discussed such as hearing the audio in wire fences and telephones to lighting fluorescent bulbs within miles of the transmitter.

A group of wireless enthusiasts enjoyed the tour of the Gray History of Wireless Museum located at the Crosley Telecommunication Center. Jack Gray, W8JDV, obtained a commercial telegraph license in 1917, worked for the Marconi Co. and obtained his first amateur license, 8ARP, in 1920. The museum consists of wireless memorabilia he started collecting as early as 1930. Anyone visiting Cincinnati is welcome to view the items during normal business hours at the center, home of WCET and WGUC.

Mother nature graced the swap meet with wonderful weather resulting in both happy vendors and customers. A fine representation of battery sets and horns, tombstones and cathedrals, various plastics and bakelites right up to transistors was to be had.

EXTRAVAGANZA '95

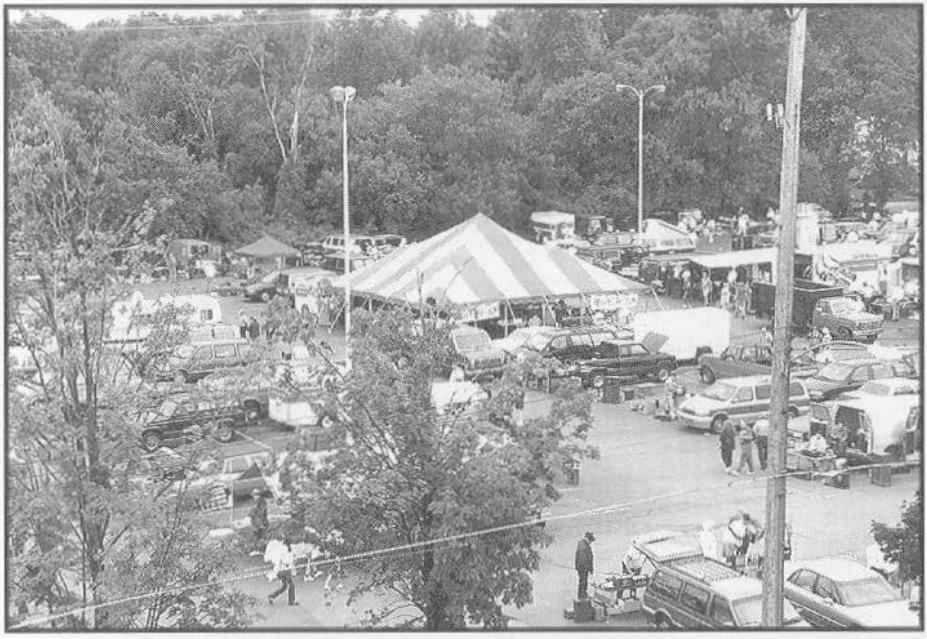
By Larry Babcock
8095 Centre Lane, E. Amherst, NY 14051

The 10th anniversary meet of the Michigan Antique Radio Club (MARC) was held July 7-9, 1995. It was another great year for this, MARC's biggest event yet. It isn't as large as the AWA meet in Rochester or the Elgin meet in Illinois, but it is in undisputed third place for size and members do know how to put on a great show.

The flea market started with a bang at sun up Friday morning with practically no sales made the preceding evening. I hit the flea market at 7 a.m. and by the time I finished my first round an hour and a half later, everything was in full swing. Many dealers told me that sales were brisk and that they had brought as much stock as they could carry because the price for additional spaces had dropped to $10 (half price). This probably increased the size of the flea market. The club encourages sellers to make the flea market big rather than restrict participants by charging higher prices for additional space.

One seller told me he had sold a white Charlie McCarthy radio for $850, a mirrored set for $1,000, and a Westinghouse RA DA combo for $325. With other sales he had received more than $4,000 half way through the event.

One surprise was the price on a World War I, olive drab BC 9 transmitter/receiver. With key but without the three VT-1 tubes, the price was marked $1,250.

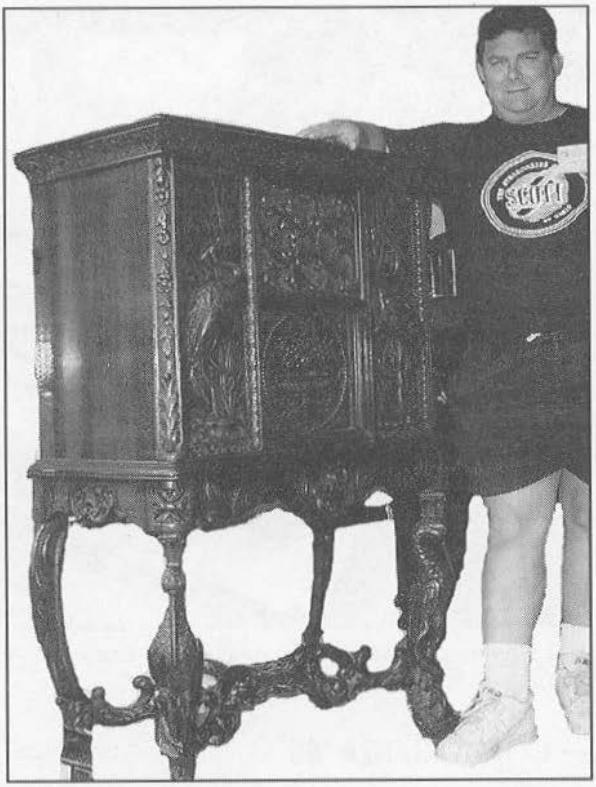


A portion of the extensive flea market area at the MARC Extravaganza '95. Refreshments, packing a shipping asistance, public address system and registration were all accomplished under the tent.

This is a nice early wireless piece but not extremely rare. I don't know if it sold.

Other interesting items for sale were an Western Electric Model 7A amplifier, GC and with the tubes, $300, and a Radiola model RS, VGC but without the tubes, $425. There was also a Model 225 Tuska, no tubes, for $425. Lots of sellers had Rider's manuals with volumes IV-XVIII selling for $15 each.

Another idea MARC employed to improve the flea market was providing services under a 40 x 40 foot tent in the middle of the lot. This was where the club ran the meet, including registration, a public address system, a full-time packing and mailing service for all three days, and free refreshments and snacks throughout the meet. I also noticed that the flea market parking lot was paved, well lighted, guarded, in a pleasant location and big. There was plenty of room for even more expansion.



Jim Clark, MARC president, with his Radiola 60 in a custom, hand-carved cabinet

Another of the MARC ideas I liked was that there were no other activities the morning of the first day to compete with the flea market. This is when the buying and selling is peaked and no other activities are needed.

Three programs were presented Friday afternoon. One by Larry Stencel described radio program memorabilia and premiums. I enjoyed that one and so apparently did many of the spouses present.

The first day culminated in the star event of the show, the social hour. To my knowledge no other radio club includes this event. Its popularity stems from the fact that it is "come as you are" and free. Hundreds of people attended the three-hour event that was held in the main banquet hall, and entered by walking through the viewing area for the many items entered in 12 contest categories.

The contest categories were arranged in chronological order so that just about any artifact was eligible. I always try to win a prize because the MARC awards are beautiful. There are wooden trophies for first place and large showy ribbons for second and third place.

The social hour included free hors d'oeuvres, band, contest awards ceremony, and a very interesting keynote address featuring the actual voice of Dr. Lee de Forest and other early radio celebrities.

Continued on page 44

This Hopalong Cassidy radio exhibit was one of 12 first place winners in the MARC equipment contest.

— EXTRAVAGANZA '95

Continued from page 43

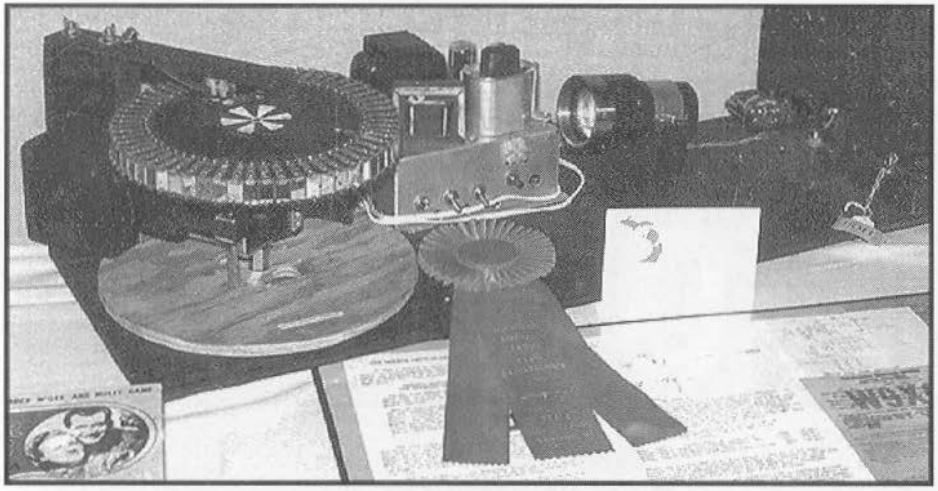
On Saturday there was another program and a women's luncheon which my wife enjoyed. But the big event was the auction at 1 p.m. Some 250 lots were sold in four hours for a total of nearly $20,000. Minimum opening bids were $20. This helped speed things up because less expensive items were grouped into single lots.

An RCA tapestry scarf about 1 x 3 ft, VGC brought $925, and an early (1935) white international Kadette, VGC went for $510. Most unusual was a cylindrical shaped wooden Motorola console. The cabinet was in poor condition with the grill broken. The chassis and phonograph were missing. It sold for $600! A red Addison Catalin (large size) GC but not working and with one new knob brought $650. MARC allows the owner to bid on his or her own set and to buy it back if the price isn't right. A nice Grebe CR 3 sold for $500, and the matching Rord, GC with broken lid brought $440. A repro of the Spartan blue mirror bluebird (solid state) brought $190. These are easy to tell from the original. The deep blue cobalt mirror glass is no longer made and the repro sets have a lighter gray/blue color.

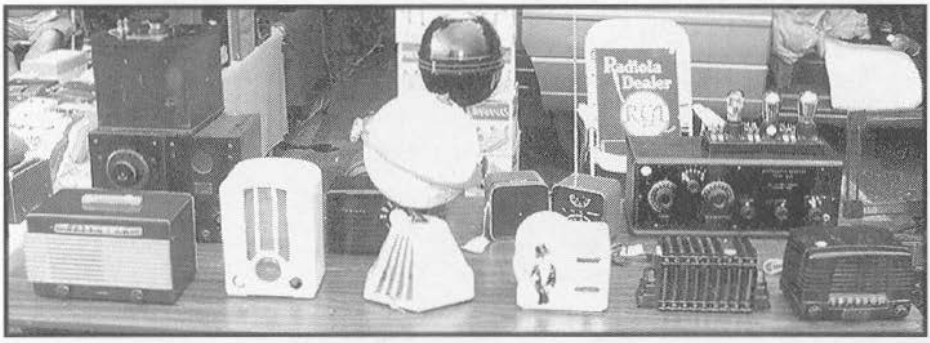
Everybody was required to wait until the end to pick to their purchases and money. This may have deterred a few who wanted to leave early but the pickup and payments went very smoothly and didn't take more than an hour.

It was a very enjoyable meet. I have attended each of the last six and hope to make it for extravaganza '96. This will be a joint meet with the AWA, and I was pleased to represent the AWA at this event.

In the 10 years since MARC was organized it has grown to nearly 700 members.



The beautiful homemade, 60 line mirror drum, 1936 television (above) was awarded second place in the Anything Goes category. Below, one of the more unusual cone speakers for sale at the MARC event.

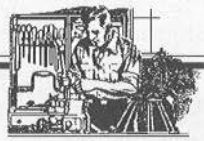


The MARC flea market held many fine examples of radios from the late 1940s and 50s. An Emerson, Colonial Globe, Charlie McCarthy and other mint condition sets dominated the table above. Below, a Fada Bullet and an Emerson caught the eye.

EQUIPMENT RESTORATION

EDITED BY

Marc Ellis
The Radio Collector
PO Box 1306, Evanston, IL 60204-1306
All correspondence requires SASE for reply.



The response to Ken Owens' provocative article "When is it Restored?" in the last restoration column was everything I had hoped for. We received almost a dozen letters, most of them quite analytical and thoughtful, rebutting — or supporting — the issues Ken raised regarding what standards should be used to judge a radio restoration.

Ken is back with us again, this time to do a summation and analysis of the points raised in the response letters. But before getting to that, we'd both like to thank everyone who responded — including:

Dennis Branch, Willits, CA
Alton A. Dubois, Jr., Queensbury, NY
Lane S. Upton, Pine Grove, CA
Mark Oppat, Plymouth, MI
C. Douglas Houston, Jr., Ortonville, MI
Leonard Aquilino, Jr., Syracuse, NY
E. Marcus Barnes, Austin, TX
Bruce Kelley, AWA Electronic Communication Museum, Bloomfield, NY
Harry Stavert, Marysville, WA
David L. Martin, Marietta, GA
Pat Leggatt, Surrey, UK

READER RESPONSE TO "WHEN IS IT RESTORED"

By D.K. Owens
478 Sycamore Dr., Circleville, OH 43113

Response to my article "When Is It Restored?" in the last issue of *OTB* (Vol. 36, No. 3) was excellent. All but one of the responses were extremely thoughtful and gave deep insight into restoration philosophy and practices. One was a personal attack on me for daring to bring up the subject. Perhaps the writer, a professional restorer, felt threatened. I hope this follow-up article will reassure him.

Several writers eloquently reminded us that we are the temporary custodians of a piece of history. We owe it to past and future generations to protect and preserve our radios and pass them on in as historically accurate a condition as possible. As one writer said: the lowliest tombstone once sat in some family's living room. On it they listened to Roosevelt's fireside chats during the dark days of the depression. They were shocked at the news of Pearl Harbor and followed World War II on it. For relief from bad news, they listened to the great "Golden Age" programs like Jack Benny and

Continued on page 48

— RESTORATION COLUMN

Continued from page 47

Charlie McCarthy. On this radio they heard history being made.

The general consensus among responders is that there is no "right" method of restoration, but there are some bad practices to be avoided. While most readers felt that restoration was a matter of personal taste, there is general agreement on what constitutes "taste". Therefore let's avoid the terms "right" and "wrong" and, instead, talk about "common practice"

All responders want their sets to play as well as when new. Several expressed their disdain for nonplaying sets in pretty cabinets. They agree that the original appearance of the visible portions of the chassis should be preserved. That means leaving everything on top of the chassis in place whether it is functional or not. Appearance under the chassis is less important. Most felt that it is acceptable to wire new replacement components in without attempting to disguise them because no one sees the under side of a radio anyway. A few like to put the new components inside the cases of old ones — a matter of personal taste. It is common practice to rebuild Philco "block" capacitors, not for appearance, but because they serve as tie points for other components.

There is agreement that rust or other degradation on the chassis must be stopped by removal and treatment of the affected area with a preservative. The chassis should also be cleaned; no one seems to consider dirt, grease and rust a part of history.

Everyone wanted their cabinets to look presentable. If the original finish is in reasonably good condition, common practice is to touch up any bad scratches, give it a good cleaning and waxing and retain the original finish. The dents and scratches are part of the radio's history. Where there is cabinet damage or the original finish is too far gone, it is common practice to refinish the cabinet after making repairs. Corroded dial escutcheons must be cleaned. However, there is agreement that a high polish on brass items should be avoided as not in keeping with the original.

Regarding cabinet refinishing, several writers were emphatic that applying a finish better than or different from the original violates the spirit of the original. A hand-rubbed lacquer finish on a cheap tombstone radio might look great, but as one writer pointed out, it creates something that never existed. It is an artifact. Another writer told of a Radiola 18 he once saw in an antique shop. Priced at over $200, it had a thick, glassy coat of polyurethane varnish, and the dial escutcheon was polished to a mirror luster. The knobs were matching modern plastic ones. The owner's "expert" restorer had replaced the original speaker in the matching 100A enclosure with a modern one because the original didn't sound good. To the writer, this radio was a "tacky, garish replica" of a Radiola 18. Such radios might impress the unsophisticated general public, but are dishonest in his opinion.

Several writers raised a troublesome subject. Should one "improve" a radio by making circuit changes? One writer describes how he converted the usual duodiode-triode detector-AVC circuit to delayed AVC making the set a much better performer. Another writer told of changing the original plate and bias voltages on the Type 45 push-pull output tubes in an RCA R-35 to values given in the tube manual. The result was a remarkable improvement in audio quality.

In putting together this article, I have sought to solicit and report the opinions of others without injecting my own, but I must comment here. I am very reluctant

to alter the circuit design of a radio, but sometimes find it necessary. There are times when a special replacement part is simply not to be had, and the circuit must be altered to accommodate an available part if the radio is to play at all. Also, some designers exceeded tube ratings in an effort to get more performance at the expense of tube life. With today's higher line voltages, the strain on tubes and parts is more severe. In 1948 a pair of 45s cost $3 retail, so owners didn't object to short tube life. At today's prices, who can afford it? In such cases, I make circuit changes to reduce the voltages. Although such changes as the last two may be justifiable to make the radio play or to extend tube and set life, it still bothers me to do it.

In summary, the consensus is that radios must play and look presentable. As one writer put it, "They should have an old, but well-cared-for look". Common practice is to retain the original finish where possible. If refinishing is unavoidable, it should be done tastefully in keeping with the original. No one objected to replica dials, grille cloth and knobs where necessary. While there are no fixed standards of restoration, there is a common practice among experienced collectors based on good taste and judgement and conservative methods. New collectors would benefit by following these practices.

MORE ON THAT TOMER TUBE-TESTER QUOTE!

From the Editor

In the May issue, I included a quote from tube engineer Robert B. Tomer, who questioned the usefulness of dynamic mutual conductance checkers on the basis of the fact that they tested tubes as "class A amplifiers of sinusoidal signals." This, Tomer felt, accounted for less than 10 percent of typical vacuum tube applications.

In a vigorous rebuttal that appeared in the last issue, Alan Douglas said, in part "I would say that Robert Tomer has his percentages backwards, and most tubes do amplify sinusoidal signals. Mr. Fourier demonstrated nearly 200 years ago that any periodic function can be expressed as the sum of sinusoids. . ."

Lane Upton (Pine Grove, CA) writes that he fully agrees with Alan's comments, and goes on to say. . . "In most cases the tubes are being driven by a signal which is swinging about zero and therefore the dynamic characteristics are of great interest. *But*, the most important thing here is *does the tube really need replacing*? We should be using the tube tester to help us evaluate the condition of the radio. If it isn't working right, the tube tester probably will tell if the tubes are at fault. Actually, the best way to test tubes is to substitute known good ones to see if they affect the performance."

Frank M. Dukat (Los Altos, CA) also sent an interesting response. . .

"Back in the late thirties and the early fifties I was an electron tube engineer in the Receiving Tube Division of Raytheon.

When I read your article about tube testers in the May *OTB* I was initially taken aback by the Tomer quote. Then I was happy to see the Douglas comment in the August *OTB* because he seemed similarly disturbed.

Upon further thought, however, I concluded that what Tomer said was correct but that he used an unfortunate choice of words which does lead to a misrepresentation.

What Tomer was trying to get across was that mutual conductance (gm) is only one of a multitude of parameters that af-

Continued on page 50

— RESTORATION COLUMN

Continued from page 49

fect the performance of a tube in an application and as a result there are really very few applications where the circuit performance will correlate with the mutual conductance measurements made in even the very best tube tester.

Here are a few applications where the gain or performance is unlikely to agree with gm.

(1) RF and IF amplifiers. Interelectrode capacitances are involved. HF gm is not the same as LF gm and the grid impedance is no longer necessarily "infinite."

(2) Converter or mixer applications. These have the same RF problems as with amplifiers. In addition, the tester only reads gm from Grid #1. It does not measure conversion gm.

(3) Pulsed applications. Vertical and horizontal oscillators, Deflection amplifiers, multivibrators. These are all "Big Swing" applications where small signal measurements do not mean very much.

(4) High amplification factor (mu) diode triodes. Yes, even something as simple as this can give trouble. First the gain of the triode has more to do with mu than with gm. The diode problem is more insidious but of course that can't be blamed on gm! Rather it has to do with what is known as contact potential. This affects the resting voltage of the AVC bus and the bias of the tubes connected on it.

All of this just reinforces the argument that if a tube has good emission, no shorts and no opens then the best test is the circuit where it is used."

Also recently received was a letter (from Desmond Thackeray, Byfleet, England) responding mainly to another point in Alan's comments — this one regarding certain technical differences between American and English high-end tube testers. Due to space limitations, I'm going to hold off on that one until next time!

— Marc Ellis

NOTED IN PASSING

C. Orval Parker (Pocono Summit, PA) was pleased to see Alan Douglas' comments on the May 1995 tube tester article, and particularly enjoyed Alan's own tube tester article in a recent *Antique Radio Classified.*

Orval also wants to point out that the Bush and Lane radio discussed in our last couple of issues was a "private brand" set. This last point raises questions about who really manufactured Bush and Lane radios and what sort of entity was "Bush and Lane" (department store, mail order house, etc.) anyway? Anyone care to jump in here?

Ray Larson thought his article in the last *OTB* ("Two-tube Heaven") came out quite well. He sent a copy to Norm Girard, only to learn that Norm had just passed on. Norm's son, who sent Ray the bad news, works as a TV repairman in the shop. So there's still a chance that Ray be able to get his hands on one of Norm's "2-tube wonders" so that he can trace out the circuit.

RECENT RADIO AND TV OBITUARIES

By Charles S. Griffen, W1GYR
1225 New Britain Ave., West Hartford, CT 06110-2405; (203) 232-8515

Note: When known, the date of death is indicated in parenthesis.

• **JEREMY BRETT,** 59, (9-12-95) TV actor who portrayed Sherlock Holmes in 41 episodes of Granada Televison's Sherlock Holmes series. His film credits include *Nicholas and Alexandra* and My *Fair Lady.* On televison, he played Max de Winter *in Rebecca* and Robert Browning in *The Barretts of Wimpole Street.*

• **GALE GORDON,** 89 (6-30-95) actor. He played Mr. Mooney, a stuffy bank manager, on *The Lucy Show* from 1963 to 1968, and Lucy's brother-in-law and employer on *Here's Lucy* from 1968 to 1974. During the 1950s he appeared on such radio shows as Our *Miss Brooks, The Dennis Day Show, My Favorite Husband* and *The Great Gildersleeve, etc.* On TV he was seen on *Pete and Gladys, Sally, The lack Benny Show* and*Our Miss Brooks,*

• **PHIL HARRIS,** 89, (8-11-95) singer, bandmaster and comic. He began his career as a bandleader in the 1930s and from 1936 until 1952 was a regular on NBC Red's Jack Benny radio show. From 1947 until 1954 he and his wffe, Alice Faye, were heard on radios *The Phil Harris-Alice Faye Show.*

• **IDA LUPINO,** 77, (8-3-95) actress and pioneering film and television director. She staffed with Humphrey Bogart in *High Sierra* and went on to become one of Hollywood's first female directors. She starred in more than 60 films, including *The Hard Way , They Drive By Night, The Man I Love,* etc. Film directing credits include *The Young Lovers, The Hitch-Hiker, The Bigamist* , etc.

• **JOSEPH P. McCARTHY,** 62, (8-16-95) radio personality. For more than 30 years he was known as the king of Detroit morning drive-time radio on WJR-AM.

• **JEAN COLBERT MARTINEAU,** (9-5-95) talk radio pioneer was host of *Th e Jean Colbert Show* on WTIC-AM (Hartford, CT) from 1947 to 1976. Previously, she had hosted radio shows in Phildelphia, Cleveland and New York City, where she had been one of the first female radio sportscasters in the country. She had also appeared in *Cavalcade of America, CBS Workshop, Lux Radio Theater, Portia Faces Life, Stella Dallas,* etc.

• **ELIZABETH CRANE MOORE,** 74, (8-3-95) business woman and former television personality. She appeared as Miss Betty on the *Romper Room* children's televison program in the early 1950s and later hosted *Heres to Your Health.* Both programs were aired on WTAR, Norfolk, VA. She and her husband managed WRVC-FM, a Norfolk classical music station, from 1965 until 1968.

• **JIM SIMON,** 61, (6-6-95) former president of the Mutual Broadcasting System, was regarded by some as the "father of talk radio." He helped make KABC radio, Los Angeles, into one of the first stations to have an all-news-and-talk format in the 1970s.

• **JOHN CAMERON SWAYZE,** 89, (8-15-95) television journalist was anchor of NBC's first nationwide television news

broadcast *The Camel News Caravan* from 1949 to 1956. In 1956 he went to work for Timex and was featured in its commercials for 20 years.

• **DALLAS TOWNSEND,** 76, (6-1-95) CBS News correspondent, was associated with the network for 44-years and covered every presidential convention and campaign from 1948 through 1980. He wrote and anchored *The World News Roundup* on the CBS Radio Network for 25 years and for two years he anchored *The World Tonight.*

• **LANA TURNER,** 75, (6-29-95) actress, began film acting in the 1930s and remained a star from the 1940s until the mid-1960s. Over the years she appeared opposite the screen"s leading men in such fibns as *Johnny Eager* (Robert Taylor), *Honky Tonk* (Clark Gable), *The Postman Always Rings Twice* (John Garfield), *The Bad and the Beautiful* (Kirk Douglas), *The Sea Chase* (John Wayne) and *Cass Timberlane* (Spencer Tracy.) She received an Academy Award nomination as best actress for *Peyton Place* in 1957.

Information for this column was obtained from *The Boston Globe, Broadcasting and Cable, The Hartford Courant, The New York Times* and *Variety.* Thanks also to H. Paul Bohlander, W3VVS; Bruce L. Kelley, W21CE, Harry Moore, W2JQS, and H. David Prace, WB21UM, for additional source material.

SILENT KEYS

(AWA members with or without radio licenses.)

• Gerald P. Bowers, WA2RHW, AWA charter member.

• Robert A. Hill

• Amandus "BB" Wentzel, Jr., W2HX

• Michael R. Doliton

• Arthur Miller

• Heather Bruce

• Jan Perry Esten, W6PN

NOTICE TO CHICAGO RADIO LABORATORY, ZENITH COLLECTORS

John H. Bryant, AIA, and Harold N. Cones, Ph.D.., authors of *The Zenith Trans-Oceanic,* and *The Royalty of Radios,* along with well-known Zenith collector Bill Wade, are currently in the research phase for their next book tentatively called *Zenith Radio: The Foundation Years, 1919-1933.*

A major feature of this book will be the history of Chicago Radio Laboratory (CRL), the precursor to Zenith. The authors are attempting to create a list of all CRL models, whether receivers or accessories, that still exist. They would greatly appreciate it if all collectors holding CRL radio products would contact them at their address below with information about specific models in their collections, and the suitability/availability of those artifacts for photography and inclusion in the new book. The authors would also like to know of CRL catalogs, manuals or memorabilia that are in the hands of collectors. Confidentiality will be protected in every case.

It is the authors intention to develop a list detailing the results of this survey (excluding the name of the collectors) and to share it with all who respond to this request.

Collectors are asked to respond as soon as possible. The list will be completed to include responses received before Dec. 15, 1995. Thank you. This is a real chance to contribute to the recording of this important part of early radio history. Please respond to the authors at:

The Radio Professors
PO Box 592
Stillwater, OK 74074

CLASSIFIED ADS

Old-time ads are free to members collecting and restoring equipment for personal use. Please observe the following: (1) one ad per issue per member; (2) include a SASE if acknowledgement is desired; (3) material must be more than 25 years old and related to electronic communication; (4) give your full name, address and zip code; (5) repeats require another notice (we are not organized to repeat automatically); (6) the AWA is not responsible for any transaction; (7) we retain the right to reduce an ad's size if over seven lines; (8) AWA does not accept commercial advertising; and (9) the deadline for ads in the February issue is Nov. 25, 1995. Ads received after Nov. 25 will be held for the following issue. Mail all ads to:

Richard Ransley, Box 41, Sodus, NY 14551

OLD TIME ODDS & ENDS

Antique radio books by Bunis; Full color, current values, free shipping in U.S. *The Collector's Guide to Antique Radios,* 3rd Ed., 280 pg., $18.95 ppd.; *The Collector's Guide to Novelty Radios,* 224 pg., $18.95 ppd.; *The Collector's Guide to Transistor Radios,* 256 pg., $15.95 ppd.; limited number of out of print 2nd ed. of *The Collector's Guide to Antique Radios* (maroon cover) $17.95 ppd. Marty & Sue Bunis, 32 West Main St., Bradford, NH 03221. (Canada, add $2/order; foreign add $5/order, surface. U.S. funds only.)

Att'n Morse Operators: Repros of Bunnell "Acme" resonators. Black pedestal, Hoods (drilled for main line or local sounder), your choice of dark red, gray, WU green or natural (varnished). Felt base, 4-foot cord. $45 includes UPS. No CODs. Jack Proefrock, K6QEQ, 20814 S. Hawaiian Ave., Lakewood, CA 90715/TDC.

Book *In the Shadow of the Shield* (see *OTB* notice of Feb. '92), illustrated hardcover, 658 pages, based on oral histories, meticulously documenting early days of W/T and radio in Kingston, Ontario: 1st W/T demonstration in North America (1987); 1st local amateurs (1913); origins of Queen's University radio station 9BT (1902-22); local WWI militia W/T training; how Marconi came to Canada; Marconi Great Lakes W/T chain, esp. VBH Kingston. Repeat customers call it fascinating, very readable...to be roundly congratulated...a wonderful tapestry on the evolution of radio broadcasting in a community...an admirable, if formidable, model. Inc P&P: $32.95 (Can$) or $27.95 (US$); from Dr. Arthur E. Zimmerman, 204-670 Sir John A. Macdonald Blvd., Kingston, Ontario, Canada K7M 1A3, (613) 542-1789; <Zimmermn@QueensU.Ca>

Federal booklet for sale: I apologize if you were unable to purchase a copy of my Federal booklet telling the story of Federal Radio at my talk at the Rochester AWA Conference. More copies are now available. Please send $ 6.25 including S&H to Larry Babcock, 8095 Centre Lane, East Aamherst, NY 14051.

Wind-up phonograph repairs, parts, springs, needles via UPS. Free catalog. Rod Lauman, 19 Cliff St., St. Johnsbury, VT, 05819 1, (800) 239-4188 evenings.

QSL cards, early callbooks and other paper items including pictures of early amateur and commercial equipment, stations and operators. Joe Holstein, 1515 Sashabaw Rd., Ortonville, MI 48462.

SELL — BROADCAST

Barn sale: Hundreds of table radios for sale (woods and plastics) cheap! No list, just come over and browse. Best to call first. Marty Bunis, 32 West Main St., Bradford, NH 03221, (603) 938 5051 before 8 p.m. eastern.

Emerson AU-190 Catalin marbled yellow radio, $950.; Dewald A-501 yellow radio, $500.; Zenith (Zenette) grandfather clock-radio, $1100.; Colonial "New World" Globe radio (brown), $800. Roy Blair, PO Box 7400, Fairfax Station, VA 22039, (703) 425-6265.

Grundig stereo, Multi-Sonic, with echo, four bands B/C, FM, SW-1, SW-2; reel to reel tape recorder, record changer, four loudspeakers, 40W. audio, less cabinet, circa 1961. Francis Yonker, W2IBH, 1229 Inverary Place, State College, PA 16801, (814) 867-1400.

Mirror for Sparton "Bluebird". Had 2 reproduced using one for my set. Will sell other for $200. Jerry Talbott, 1440 SW 239th, Hillsboro, OR 97123, (503) 649-6717.

Paragon 3A, cabinet only, near mint, $175; Silvertone Neutrodyne, battery set (dry battery), untested, good, $110; Spielman Air Pilot, audio transfromers missing (under chassis), very good, $75. Also many other radios, books & collectable tubes. Send 2 stamps for complete photo-list to Ron Boucher, PO Box 541, (OT), Goffstown, NH 03045-0451, (603) 497-2988, Compuserve #72440,1356.

RCA X551 table radio, $30; Zenith T724 table radio, $25; 1954 L600 Zenith Transoceanic, $65; Sony Mono Reel-to-reel type recorder, $25 Dan Smith, Box 404, Morrisville, NY 13408, (315) 684-3045 leave message.

Zenith Stratosphere in near mint original condition. Best offer considered. Bruce Mercer, 1226 S.E. Second St., Evansville, IN 47713, (812) 423-9706.

SELL — GENERAL

10-year accumulation of old radio and test equipment, parts, tubes, service data. Cash and carry only. Gilbert Murray, 1745 Charlotte St., Jacksonville, FL 32224, (904) 221-1912 after 4 p.m.

100 assorted QSL cards, $12.50 postpaid. Have 1,000's of unlisted old radio parts, tubes, old radios, service data, keys, horn, speakers, magazines. Write wants with LSASE. Frank Krantz, 100 Osage Ave., Somerdale, NJ 08083-1136, (609) 783-0400.

Complete set of Sam's manuals Volumes 1-850 (hardbound); several transistor and tube type radios. Dalls Troutner, 701 H Street, Fairbury, NE 68352, (402) 729-4060.

Hamm. Super-Pro;Motorola TS-4JTV;Wurlitzer #280;Hallic. S-55;Decks-Eico 2400, Akai 3000D,Sony TC-230;Philcos:38-116T, 52-940;Midland 13775B; Transceivers; REK-O-KUT T.T.;Norelcos 597 SW-TNR, B5X33A/OS, B4X12A/54, B2X78U/02; Grundig HF-20; Magnecord 35-B;Fisher 160-T rcvr;Regency XR-2A;Scotts 370 + 2515 rcvr T.T.; Westinghouse H-104; Korting #1047;Arvin 3586, RCA 1-R-81;Firestone S-7403-8;Eico ST-97;Pilot 602-S;Zenith G-730, T-825,H-724,A-835;Truetone D-2613;Kobold-5720;GE 210 + 506;Knights KG-320 and K6-70;Heath FM-3A;Sparton 1001. R. Wolfson, 610 Youngs, Buffalo, 14221, (716) 895-5447 or (716) 676-2455.

Philco Model 37-670 console cabinet, colid condition with dial glass, $30, pickup only. Nick Viania, 54 Neutral Ave., Staten Island, NY 10306.

RCA UZ-1325 horn speaker (good condition), $100; Sony TR-620 black transistor radio (works), $25; King Radio No. 61 3-dial battery set (no tubes, good condition), $50; Radiola 16 cabinet only (very good condition), $20. All plus UPS shipping. Nick Lamendola, 1763 Rochester St., Lima, NY 14485.

Reducing collection of 1920-1960 radios including wood, bakelites, metal, shortwave, ham, general coverage, portable shortwave with AM/FM, transistor, tube portables, Deco Philco floor model 38-116 w/ cabinet near mint cond. Also 5 reel-to-reel recorders; nice European AM/FM/SW table radios, 1940s and 1950s TVs, Hi-Fi and stereo gear. Send SASE with 2-stamps for list. Rick Wolfson, 610-G Youngs Road, Buffalo, NY 14421, (716) 895-5447 or (716) 676-2455 or (716) 833-7270.

Vintage DuMont oscilloscope 5" in steel case, dated 9/3/49, operating, $60; speaker from about 1927, Montgomery Ward 43" (oval) circumference, 7¼" deep. Metal case with wrought iron supports, 14" high x 17½" wide overall, $35; H-P VTVM, with probes, Mod. No. 4108, $25; Heath Color Bar Generator, Model IG-62, 12 tubes (1 missing), $25. All prices plus UPS or PP shipping. Edwin Kubes, 11 Aster Drive, DeBary, FL 32713, (407) 668-5858.

WWII prop pitch motor has 10,000:1 gear reduction, 1 r.p.m., original surplus cond., never used, 24-28 VDC. Too heavy for UPS. Local pick-up, $95. Repros: Thordarson, 1941 Amplifier Guide, 346-D. 32p., super copy-better than original. $15 pp.; Gernsback 1937 Short Wave Coil Data Book, 16 p. Super copy-better than orig., $8 pp. Ralph Zekelman, 6485 Gross Rd., Bloomington, IN 47401, Fax/tel (812) 333-8941 or #10 SASE.

Zenith Model R-600, Chassis Model 6R40 portable Trans-Oceanic, 7-bands, black imitation leather, very restorable. Includes instruction manual, logs and charts. John Whiteacre, 2609 Devonshire, Lansing, MI 48910 (517) 482-7996.

SELL — KEYS & TELEGRAPH

History, Theory and Practice of the Electric Telegraph by George Prescott (1860/1866 edition). 1972 hardcover reprint; new old stock; cover faded. Excellent reference; 500 pages. $18.95 ppd North America. Want: Anything by T.R. McElroy. Tom French, 151 Barton Road, Stow, MA 01775, (508) 562-5573.

SELL — LITERATURE

"The Locator." Riders Volumes 1 thru 18 indexed by tube complements. All 2, 3, 4, 5 and 6 tube AC and AC-DC sets indexed along with other helpful identifying information. Quickly and easily locates and identifies your "mystery" sets if they're listed in Riders. Locates matching or similar schematics from other manufacturers if your set isn't listed. 68 double pages. Only $12. 95 postpaid in USA. Gerald Larsen, 7841 W. Elmgrove Dr., Elmwood Park, IL 60635, (708) 452-7679.

Old radio books, 1907-1950; magazines, catalogues, receiving and transmitting tube manuals, Rider's indexes, ARRL publications, *Radio Retailing;* scanning disc and early TV literature. Also cathedral, tombstone, bakelite and novelty radios. Patrick Henry Jr. crystal set, $395 ppd.; Heathkit grid dip meter, $30; RCA bakelite with HMV/Nipper logo on dial, $59; Zenith Cobra record player, $75. Bill Rolf, 30131 Center Ridge, Westlake, OH 44145, (216) 871-4547.

Paperback book, *Behind the Front Panel — The Design and Development of 1920 Radios by David Rutland.* 1994, 158 pages, $12 ppd. Ken Greenberg, 4858 Lee, Skokie, IL 60077 ,(708) 679-8641.

Riders manuals: Volumes 1, 3, 6-16. Prices range from $15 to $90. Television Volumes 1-27 (complete set), $25 each. LSASE for price list. Sam Faust, PO Box 94, Changewater, NJ 07831.

Sell following books/handbooks: *Jones Radio Handbook*, 1935, 1st Ed., $50; *Jones Radio Handbook,* 1936, 2nd Ed., $35; 1927 *ARRL Handbook* 2nd ed., loose cover, water mark on first page, $50.; 1929 ARRL Handbook 6th ed., $30; *Wireless Experimenters Manual,* Bucher, 1920, hardbound, soiled, worn, $20; *Practical Wireless Telegraphy,* Bucher, 1917, hardbound, 2nd ed., $20; *Citizen's Radio Amateur Callbook,* Fall 1926, Vol 7, No. 2, $15; *Citizen's Radio Amateur Callbook,* March 1927, Vol. 8, No. 1, no covers, soiled, worn, $8. All plus shipping. Others also available with SASE. Jan Perkins, 524 Bonita Canyon Way, Brea, CA 92621.

SELL — PARTS

Marconi antenna inductor coil, 100-500 kc.; Spark transmitter transformer (windings ok); full bridge chemical rectifier (with porcelain jars); rheostat, switch board, etc. All this is large and heavy gear! Cash and carry only! $500 for lot or best offer. Please send $2 for itemized list and pictures (no SASE, please) to Mike Batch, 463 Manor Rd., East Toronto, Ontario, Canada M4S 1T3.

Panel meters, milliamps, volts, ohms, tube test, square, round, various sizes, SASE for descriptive list. Best reasonable offer accepted for lot (approx 22 lbs.) George Greenberg, KD4OBV, 1701 Andros Isle, K2, Coconut Creek, FL 33066.

VHR307 RCA approx. 1940 RF chassis for a large console (Riders's Vol. 12). Set had external power supply, audio and a record cutter. I may sell for parts. Send LSASE. Ray Larson, 12241 1/2 Gorham, W. Los Angeles, CA 90049-5214.

SELL — TEST GEAR

Hammarlund Super-Pro 400-X. Mint with power supply and manual. Make offer. Bill Baker, 2 Highgate Rd., Riverside, CT 06878, (203) 637-1399.

Early transistor radios: Philips "All Transistor" table radio, $95; German Accord portable, $70; Philips portable, one handle clip damaged, $60. Other sets include Sierra "8 Semiconductors," chip on back, small portable, $35; 1960s Russian Okean 205 multiband, $80. Trades welcome. Need horn/cone speakers, 1920s sets, WD-11 and 201A tubes. Argirios Adamidis, 19 Kampouridi St., Panorama, Thessalonik, Greece 55236, Tel. (031) 342405.

Tubes available such as European WE - A,E,U,RES,RENS, etc. and American 10,41,56,6xx,7xx,12xx,VTxx, etc. Request list from Pispola Patrizia, Via Morandi 26, 06070 Badiola, Perugia, Italy.

WANTED — GENERAL

National HRO with coils; CQ 1976-1989. Dong-Hyun Cho, Biology Dept., Kang Won Natl: Unit., Chun Chon 200-701, S. Korea.

Atwater Kent breadboard Model 9, 10 or 12" in at least fair condition, complete (prefer with tubes). Sell King radio, excellent condition N/T, $125. Richard Marlow, 4 Corbett Ave., St. Catharines, Ontario, Canada, L2N 5M4, (905) 934-9378.

16EP4A CRT; Airline 62-101 chassis; 21FJP22A or 21GVP22 CRT; Stromberg Carlson 130J tuning knob; Zenith G2441R porthole dial. Keith Pacrk, (518) 373-0417.

Antique medical devices, especially violet rays and induction coils. Also scientific apparatus. Richard Cane, 1333 N.W. Dr., Sunrise, FL 33323, (305) 846-7116.

Base with driver for AK cygnet horn; Music Master 21" bell with or without cygnet and driver; early radio or wireless. Bill Hoffman, 2570 Falcon St., E. Meadow, NY 11554, (516) 826-2135 eves.

Braodcasting microphones, call plates and tube type limiters 1920-1970. James Phillips, 414 Washington Ave., Defiance, OH 43512, (419) 782-8591.

Collins radios, accessories, stock certificate, Signal magazines and related Collins items. Would like to correspond with former owners and users of early Collins equipment, employees, etc. Brian Roberts, K9VKY, 3068 Evergreen Rd., Pittsburgh, PA 15237, (412) 931-4646.

General Radio 269 variometer; 210 vacuum tube; Need tube duds for display? State needs. All types include WE Co. Tad Drogoski, N3JZQ, 507 Coal Valley Rd., Jefferson Boro, PA 15025-3703, (412) 466-5950.

Horn speakers, 1920s battery sets, early 1930s small size radios, WD-11 (dud), 201A (good), crystal sets and parts, spark transmitter parts, 1920s or earlier radio magazines, illustrated catalogs. Argirios Adamidis, 19 Kampouridi St., Panorama, Thessalonik, Greece 55236, Tel. (031) 342405.

Klitzen Model 125 detector/amplifier. Please see Volume 2, Page 170 of Radio Mfg's of the 1920s. Phillip Drexler, 1175 E. Ripley Ave., St. Paul, MN 55109.

Langevin 128-N rack mount p.a. amplifier. Frank Hagenbuch, 1440 Lafayette Pkwy., Williamsport, PA 17701, (717) 326-0932.

National FB-7/FBX and 1-10/1-10A coils, NC-45 receiver and CRR 0-scope. Wayne Childress, KC7KUE, 1903 Jerome Pl. #3, Helens, MT 59601, (406) 443-7255.

Paying top $ for Amrad radios and radio parts! Need driver for Herald "A" horn (see pg. 35 of Aug '95 *OTB*) and also driver for Amplion AR-111 horn. J.C. Woychowski, 17 Hope St., Niantic, CT 06357, (203) 739-6579.

RCA Service Data Book Vol. III (1943-1946); Wurlitzer service data for juke boxes (50s-70s); Grundig/Telefunken service manuals (50s-70s); Zenith grill cloth. Is anyone going to carry most of the Zenith patterns? Also need following tubes: 1L6, 1U6, 6J5G, 6G5, 6E5, 6U5 (NOS/NIB). Scott Phillips, Sr., 368 Clinton St., Binghamton, NY 13905, (607) 797-0066 9:15am-5:15pm EST or fax (607) 797-0013.

Tip element assemblies for wall "Trig-R-Heat" Model 238LT soldering gun; manual for Heath EK-2 BC/SW radio; Sams TR-46; Ameco TX-86; Hallicrafters SR-46A. Al Bernard, PO Box 690098, Orlando, FL 32819, (407) 351-5536.

Vacuum tube Fisher Tuners, power amps, and preamps wanted. Also advertising literature, parts units, oddball items, TFM-1000 or FMR-2 solid state tuners. Have vintage Fisher tube and early solid state parts and manuals for possible trade. Collector for 20 years. Al Pugliese, The Fisher Doctor, 27 Daleham St., Staten Island, NY 10308, (718) 948-7489 8pm-midnight, weekends anytime.

Hudson brand radio, preferably table top. Please write with description and asking price. Also looking for escutcheon for GE A-63 Tombstone radio. Douglas Hudson, 5270 Spring Beauty Court, Gahanna, OH 43230, E-mail to 74031.1073@Compuserve.com.

Vintage microphones, stands, parts & "flags"; tube Hi-Fi & broadcast equip.; Pro tape & disc recorders; blank recording discs; W.E., RCA 7 Altec theater & Pro audio equip; 16" radio transcriptions; *RCA Broadcast News* & WE *Pickups* and *Oscillators* magazines & other broadcast catalogs, manuals & magazines; TV cameras, studio equipment. Have items to trade. Robert Van Dyke, 2 Squires Ave., East Quogue, NY, 11942 (516) 728-9835.

Western Electric speakers/amps/trans/tubes; Brook, Altec amps/speakers; UTC amps/trans; large EV/Jensen/JBL speakers. Mike Somers, 2432 W. Fargo, Chicago, IL 60645, (312) 338-0153.

Working chassis for Spartan Model 737 floor model; cabinets for an AK Model 60 and Majestic Model 250-250M. Nick Viania, 54 Neutral Avenue, Staten Island, NY 10306.

WANTED — INFORMATION

Advice/information on best/most effieient method of coupling bal. output of Hallicrafters HT-6 xmtr to coax fed vert. antenna. Craig Hinton, NM0L, 2668

N. Riviera Dr., White Bear Lake, MN 55110 , (612) 426-4751.

Any info on Imperial Radio Co. of Binghamton, NY — company owners & history, models manufactured, photos, copies of ads, etc. Send to A.G. Green, Jr., Editor, *OTB,* 312 Raylene Drive, Vestal, NY 13850-5722.

Any information to help restore my family's first TV set, an Andrea Radio Corp. "Sharp Focus" model based on a VK-twelve chassis with s/n 49094. Would be happy to defray the cost of copying and mailing a schematic and/or service information, or will purchase same. Alex Mendelsohn, AI2Q, 164 Sea Road, Kennebunk, ME 04043, (207) 967-3438.

Any information on RMS Titanic or RMS Olympic shipboard radio installation. Desire to build working replica. Will reimburse all costs. Christopher Crea, N9VDM, 6648 S. Kostner, Chicago, IL 60629, (312) 585-7026.

Gilbert radio, manufactured in California; CONSCO radio (1920s battery, 5-01As); Beckley-Rawlston radio (1920s battery, 5-01A's manufactured in Chicago. Would appreciate any/all help. Wayne Gilbert, 10751 Routt St., Broomfield, CO 80021, (303) 465-0883.

Looking for a manual for a Lafayette tube/transistor tester. I believe it was the only one they ever sold. It is about 11" square by 4" thick. William Mitch, 668 West 725 South, Hebron, IN 46341.

Seeking information on radios manufactured in Colorado such as REN-RAD, A&M Radio, Boulder Radio, Madison Moore, Gillett Marvel crystal radio, Pyle-Amplex Model 11, Nollenberger & Dorner. Any info on these or others would be appreciated. Wayne Gilbert, 10751 Routt St., Broomfield, CO 80021.

Wish to contact a person thoroughly fimiliar with the principles, use and circuitry of the coherers used during the early 1900s. John Gaffey, II, 54 Oaktree Lane, Irvine, CA 92715, phone/fax (714) 786-2313 (ex-W6SMC-1941).

WANTED — KEYS & TELEGRAPH

Keys & Telegraph wanted: Your retired, unused, vibroplex, Speed-x, or McElroy bug. Brian Roberts, K9VKY, 3068 Evergreen Rd., Pittsburgh, PA 15237.

Rare speed keys (bugs) from unusual manufacturers and of unusual design; foreign and domestic. I have some very good traders including a Vibroplex vertical. I am especially interested in obtaining a Brown Bros. Model CSA, a Boulter Co., or others such as Conkling, Hunter Apex, Simplex, Liesler, etc. Gil Schlehlman, K9WDY, 335 Indianapolis, Downers Grove, IL 60515, (708) 968-2320.

Speed-X keys and bugs. Also needed damaged or incomplete keys and bugs, Les Logan Model 515 parts, chrome weight for Vibroplex Lightning Bug. John Mathews, KE6LAW, PO Box 1992 Costa Mesa, CA 92628-1992, (714) 552-1047.

WANTED — LITERATURE

ARRL handbooks, 1st edition, 5th, 14th, 19th and 20th. In good condition. WA7IHN, PO Box 442, Aumsville, OR 97325, (503) 749-1149.

Assistance in obtaining a copy of schematic and operating instructions for Harris RF Communications, Model RF 675 antenna coupler. Thanks. Bill Mills, 16523, Tonys Court, Amissville, VA 22002.

First annual *Wireless Blue Book* published by the Wireless Association of America, dated May 10, 1909. *Citizens Radio Callbook* magazine for 1920, 1921 and 1922; *Citizens Radio Amateur Callbook* magazine with flying horse cover for 1924, 1925 and 1926; 1913 *Dept. of Commerce Radio Stations of the U.S.*, same for 1915. Bob Arrowsmith, W4JNN, PO Box 166, Annandale, VA 22003, or call collect (703) 560-7161.

Manual of Short Wave Radio Vol. 2 (Zeh Bouck, ed.), *Ultra Short Wave Amateur Band Communication* (James Millen), and *AWA Reviews* Vol. 2, 3 and 5. Wayne Cheldress, KC7KUE, 1903 Jerome Pl. #3, Helena, MT 59601, (406) 443-7255.

*QST*s before 1923 to complete my collection. Edward White, WA3BZT, 809 Seymour Rd., Bear, DE 19701-1121, (302) 322-1313.

Radio Boys books by Chapman with original dust jackets to complete collection: "Signal Island," "Snow Bound" and "To The Rescue." Henry O'Meara, 42 Aqua Ra Drive, Jensen Beach, FL 34957.

RCA Service Parts Directory for RCA Victor Television Receivers (1946-1950), SP-1007. Peter Keller, KG7YF, 7445 S.W. Bayberry Drive, Aloha, OR 97007.

Seeking manual or copy of same for the U.S. Army Signal Corps radio receiver Type BC-175. Range 2100 to 2900 kHz. Part of radio set Type SCR-189. Will pay reasonable price. Paul Dilliard, WA8IBT,

1313 E. Wheeling St., Lancaster, OH 43130, (614) 653-5268.

Want following *ARRL Handbooks* for my collection: 1st edition, 5th, 14th, 19th and 20th. In good condition. WA7IHN, PO Box 442, Aumsville, OR 97325, (503) 749-1149.

WANTED — MILITARY

Collecting early WWII radar equipment, indicators, antennas, complete systems, the bigger the better! ALLan Weiner, 97 High St., Kennebunk, ME 04043, (207) 985-7547.

Magnetron tubes made before 1945. Derk Rouwhorst, Postbus 24, 7490AA Delden, Holland.

WANTED — PARTS

6 kHz Collins mechanical filter, type F-455-FA/K/N/Y-60, only cylindrical case, preferably "N". Also want wooden knobs for Stromberg Carlson radio type 140/160/180. R. Wieschhoff, 7, rue du Debuche,F 78120 Rambouillet France Tel. 33-1 304 111 02.

Ampex AG-350 "Master" electronics and stereo head assembly for above mentioned Ampex recorder. Gaylord Ewing, PO Box 144, 19 E. Main St., Morris, NY 13808.

Antenna coil for a Splitdorf Model R-500 receiver. William Mitch, 668 West 725 South, Hebron, IN 46341.

Base driver for my Reichman Chicago, IL horn speaker. Prefer good condition with continuity. Don Maurer, 29 South 4th St., Lebanon, PA 17042, (717) 272-2481.

Coil and dial scale "E" and "F" for the HRO-60. Richard LaMark, N2TXL, 6822 Tuckahoe Rd., Williamson, NY 14589-9589, (315) 589-2552.

G.R. 269 variometer and a variocoupler. Tad Drogoski, N3JZQ, 507 Coal Valley Rd., Jefferson Boro, PA 15025.

Good robot dial split second face and shutters for Zenith 12S265. Black paint on mine is alligatored and peeling. Does anyone know what other models from which I could use a dial face? Am also looking for original type grill cloth for same radio. Mark Hilliard, N3NBL, 931 Edward St., Allentown, PA 18103, (610) 432-8089.

Good robot dial split second face and shutters for Zenith 12S265. My black paint is alligatored and peeling. Am also looking for original type grill cloth for same radio. Mark Hilliard, N3NBL, 523 North Law St., Allentown, PA 18102, (610) 432-8089.

Hallicrafters SX-111 dial plate. Dick Bixler, 14955 N.W> Channa Dr., Portland, OR 97229, (503) 690-2557.

Hammarlund brass capacitor-Model MLW-125-to restore Collins 30w transmitter; Any model Cosmophone or information (owners, serial numbers, etc.) for registry. Brian Harris, 3521 Teakwood Lane, Plano, TX, (214) 596-2914.

Need a universal replacement broadcast band oscillator coil for a 6C5 oscillator feeding a 6L7 mixer. Ross Smith, 1133 Strong Ave., Elkhart, IN 46514.

Please look in your goodies box for a National six-pin coil socket (fits SW-3 coils) and a S-101 network (need not work!) These are the last two parts I need to resurrect my SW-3! Thanks. Rick Ferranti, 254 Florence Ave., Arlington, MA 02174-7248.

Plug-in crystal, 2315 kc for Gonsett Multiband Radio receiver. Walton Dallas, 7428 Centenary Ave., Dallas, TX 75225-4515, (214) 363-1983.

Two Halldorson audio transformers. Coils surrounded by copper colored shields, blue label on top, duds OK. Used in Metrodyne radios. Dave McClellan, 1086 Trailridge Lane, Atlanta, GA 30338, (770) 399-6704.

WANTED — RADIOS

Aeriola Sr. receiver (molded panel), clean, pricey OK. Gary Gordon, 21112 Bank Mill Rd., Saratoga, CA 95070, (415) 857-4958.

Pilot radios wanted: Any model, any condition, pickup available. Also need Pilot knobs, tubes and parts. Bill Moore, 3049 Box Canyon Rd., Huntsville, AL 35803, (205) 880-1207.

Transistor radio: Offering $1,500 for Sony TR-55. Also paying top dollar for: Sony TR-6, TR-61, TR62, TR65; Toshiba 8-TP-90, 5TR-221; Pennys 41-7TM-285S; other interesting, unusual, rare or desirable, especially in the box. David Mednick, 1450 Palisade Ave., #5H, Fort Lee, NJ 07024, (201) 461-3082.

WANTED — TUBES

#50 tubes, globe or St shape, 2A3 single plates, VT-32 and 300A or 300B Western Electric tubes, new or used. Don Singerhouse, PO Box 768 Maywood, NJ 07607, (715) 346-3899 or (201) 843-8682 (tel/fax).

THE MUSEUM

MUSEUM REPORT

The AWA Museum again entertained visitors from near and far with staff members from Philips in Eindhoven, Holland, and British Marconi in Chelmsford, England, closing the season. Considerable credit for the successful operation goes to our faithful guides and annex workers. One of the most challenging tasks is managing bus loads of school children or senior citizens. Fortunately, AWA has retired school administrator Henry O'Meara, an old pro, handling this.

Many donated items have come in during the past six months, taxing our annex storage facilities, a problem we hope to see remedied in the near future. One piece of particular interest is what may be the world's first transistor transmitter, a gift from Bro. Patrick Dowd, The small transmitter was built by RCA research department director George Rose, K2AH, and has been described in RCA publications and *QST.*

Lastly, a reminder: The 1929 QSO Party is scheduled for Nov. 10-12. See the August *OTB,* page 30, for details.

RECENT DONORS TO MUSEUM

John Paul, WA2MLZ
Bill Fizette, K3ZJW
Bro. Pat Dowd, W2GK
Cecil Holland, W5UPB
Elmet Wagner, WB2BNJ
Mani Pires
Vincent Briggs
John Babina

AWA Electronic Communication Museum

FREE ADMISSION

Location: Village Green, Rts. 5 & 20, Bloomfield, NY.

Hours: May 1 through Oct. 31 — Sunday, 2-5 p.m.; also, June 1 through Aug. 31, Saturday, 2-4 p.m. and Wednesday, 7-9 p.m. (Closed holidays.)

Group Tours: By appointment.

Museum Telephone: (716) 657-6260

Amateur Station: W2AN

Mailing Address: Bruce Kelley, Curator, 59 Main St., Bloomfield, NY 14469

Mystery Photo

A supposition: He may have been the world's most avid collector of radio tubes. The question: Who is this collector, where is he speaking, and what ever happened to his vacuum tubes?